LIBRARY OF CONGRESS
COPYRIGHT
FEB 15 1887
3077
CITY OF WASHINGTON

PRICE 15 CENTS.

FEBRUARY 12, 1887.

THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. XXI. REGULAR EDITION NO. 581.

ARCHITECTVRE

ENGINEERING

DECORATION

CONSTRVCTION

TICKNOR & COMPANY

BOSTON · MASS.

CONTENTS.

Editorial Summary.
Enthusiasm and Enthusiasm in Art.
The Recent Convention of the American Institute of Architects.—I.
The best twenty Books for an Architect's Library.
The Removal and Destruction of Organic Wastes.—II.
Books and Papers.
Communications.
Notes and Clippings.
Trade Surveys.

ILLUSTRATIONS.

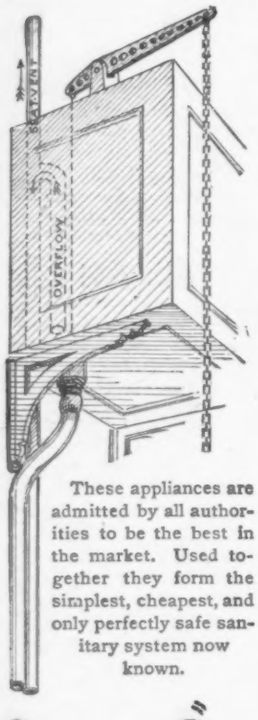
The Greek Gallery of the Museum of Fine Arts, Boston, Mass.
(Gelatine Print issued only with Imperial Edition.)
Competitive Design for the Carnegie Library, Allegheny, Pa.

THE CELEBRATED

SANITAS

PLUMBING

APPLIANCES.

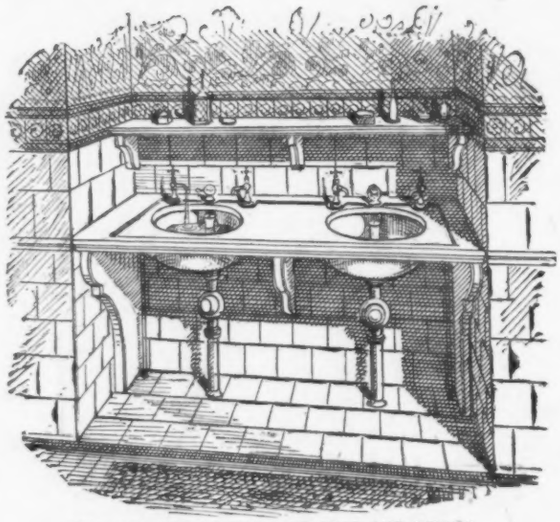


These appliances are admitted by all authorities to be the best in the market. Used together they form the simplest, cheapest, and only perfectly safe sanitary system now known.

"SANITAS" TRAP
OPENED.

The Sanitas Trap, whether vented or unvented, has shown itself when properly set to be capable of resisting indefinitely, siphonage, back-pressure, and all other adverse influences met with in plumbing.

The "Sanitas" Basin flushes out the pipes and keeps them clean.



THE "SANITAS" WASH-BASINS AND TRAPS,
Set in Tile-work.

THE "SANITAS" MFG. CO.

THE "SANITAS" WATER-CLOSET.

THE "SANITAS" WASH-BASIN.

("SANITAS" BATH-TUB and PANTRY-SINK on same principle as Basin.)

THE "SANITAS" MANUFACTURING CO., BOSTON, MASS.

T. H. DUGGAN, 141 Dartmouth Street, BOSTON, MASS. TELEPHONE, 4165. Will execute anywhere, in first-class manner, small or large contracts for PLUMBING.

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XXI. Copyright, 1887, TICKNOR & COMPANY, Boston, Mass. No. 581.

FEBRUARY 12, 1887.

Entered at the Post-Office at Boston as second-class matter.

CONTENTS

SUMMARY: —
Formation of a National Association of the Master-Builders. — Semi-annual Meeting of the Ohio State Association of Architects. — What is being accomplished by the Fire Underwriters. — Tile Roofs. — Construction of a Bank at Aden. — Londoners Experiences with frozen Water-front. 73
ENTHUSIASM AND ENTHUSIASM IN ART. 75
THE RECENT CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS. — I. 76
THE ILLUSTRATIONS: —
The Greek Gallery of the Museum of Fine Arts, Boston, Mass. — Competitive Design for the Carnegie Library, Allegheny, Pa. 80
THE BEST TWENTY BOOKS FOR AN ARCHITECT'S LIBRARY. — I. . 81
THE REMOVAL AND DESTRUCTION OF ORGANIC WASTES. — II. . . 82
BOOKS AND PAPERS. 83
COMMUNICATIONS: —
Shrinkage in Solid Timber Walls. — Demanding a Retaining Fee. — Schools of Furniture Designing. — Books Used at the Mass. Institute of Technology. — A Case of Disputed Commission. 83
NOTES AND CLIPPINGS. 84
TRADE SURVEYS. 84

THROUGH the initiative of the energetic Master-Builders' Association of Boston, steps have been taken towards the formation of a National Association, including a representation of all the various industries interested in the construction and erection of buildings throughout the United States; and a call has been issued by a committee chosen at an informal preliminary meeting, held in Boston last month, for a Convention of Master-Builders, to be held in Chicago, on Tuesday, the twenty-ninth day of March next, to form a definite organization. The master-builders' exchanges, or associations, of cities having not less than fifty thousand inhabitants, are entitled each to send seven delegates to the Convention, provided the association sending delegates represents a membership of not less than fifty firms; and under certain conditions, where no general builders' association exists, the separate trade associations, if there should be such, are entitled to unite in the election of delegates. There is every reason to believe that the formation of such a National Builders' Association would be of great service to the public, and as the names of the committee having the matter now in charge include those of some of the ablest and most energetic men in the United States, it is certain that nothing will be left undone to begin its work in the best possible way. Every one now acknowledges that the friendly connection among architects, which has been established by the formation of the various local and general associations, has been of immense benefit to the profession in this country; and architects will be particularly interested in observing the good effect of wider sympathies, and greater liberality in comparison of views and giving up of local prejudices, among their friends the builders, whose trials they are better able than any others, not directly interested in the business of building, to appreciate.

THE Ohio State Association of Architects has just held its semi-annual meeting, and appears to be in a flourishing condition, fifty-seven members having already been admitted, twenty-one of whom belong to the Cincinnati Chapter, while local affiliated societies have been formed in Cleveland, Toledo, Columbus and Dayton. The question of the licensing of architects was earnestly discussed by the meeting, and a draft of a bill relating to the subject, to be presented to the Legislature, was finally adopted. This draft proposes that every person applying for a license to practise architecture in the State shall pass an examination before a board of five architects of experience, to be appointed by the Governor, and provides that unlicensed persons who engage in professional work in the State shall be punished by a fine of not less than fifty nor more than one hundred dollars. We have serious doubts whether the public, as represented in State Legislatures, is yet ready for license laws in regard to the practice of architecture; but the unanimity with which the professional associations have recently undertaken to sift and improve their own membership, together with the growing feeling among them that some sort of regulation of architectural practice is necessary, indicate the existence of a strong professional sentiment, which will before long communicate itself to the outside world. After the conclusion of this business, the Association proceeded to the election of officers for the present year, choosing Mr. C. F. Schweinfurth of Dayton as President; Messrs. Aiken of Cincinnati, Barnum of Cleveland, Stribley of Columbus, Williams of Dayton, and Fallis of Toledo, as Vice-Presidents; Mr. F. A. Coburn of Cleveland as Secretary; Mr. H. C. Lindsay of Zanesville as Treasurer; and Messrs. Yost of Columbus, Weary of Akron, and Rapp of Cincinnati, as the Executive Committee.

THE *Spectator*, in speaking of the losses sustained by the insurance companies during the past year, says that although an unusual amount of property has been destroyed by fire, the companies have of late done so much to secure improvements in risks, and, by a mutual understanding with each other, to reduce the expenses incident to excessive competition and extravagant commissions, that it is believed that the net results of the year's business will be quite as favorable as those of any one of the past five years. It is hardly necessary to say that the good effect of a single year's strictness in regard to risks will continue at least as long as the policies issued during the year remain in force; and we sympathize with the *Spectator* in hoping that the companies will maintain their present attitude, and thus promote a reform which will bear fruit manyfold, for them as well as for the public. The *Spectator* goes on to say that "the success of the New York compact, in spite of all opposition and hostility to it, has been pronounced," and it predicts that before the end of the present year similar organizations will be formed in all our large cities. If this prediction should be verified, and if, we must add, the other underwriters' associations should all be managed with the earnest zeal of that in New York, a new and most satisfactory prospect would be opened, not only for the insurance business but for all others. Speaking as outside observers, interested only in the promotion of good and substantial building, we venture to say that the New York Underwriters' Association has already had an influence upon the art of construction in that city of which it has little idea. Although a few of its rules were, as we think, injudicious, and others might have been improved by consultation with architects, its code was, on the whole, excellent, and, what is more, it was enforced with tolerable thoroughness. If it had not been enforced, it would have been worse than useless; and for a time it was very doubtful whether the Association could maintain its stand against the powerful influences which resisted its efforts; but it held out bravely, and has now enlisted in its support a considerable portion of the public, which at first held aloof to see whether it really intended to carry its professions into action. In the first rank of its new allies, whose support is no less effectual because it is silently given, should be counted the New York architects, whose courage in planning and building safely and well has been greatly fortified, within the last few years, by the managers of the Association, whose rules they have been diligent in disseminating and improving upon. It is not many years since blocks of stores in the heart of the dry-goods district, intended to contain millions of dollars' worth of property, were built with cast-iron fronts, which did not touch, by several inches, the party-walls behind them, but left a wide crevice between the stores, the whole height of the building, covered with a little sheathing, or a few laths, plastered. There was probably not an architect in the city who would not have condemned such construction, but in those days it was useless to make suggestions in regard to precautions against fire, which were met with the invariable answer that "the insurance companies will not make us any allowance for that," or "that it will make no difference in the premium rates, and we might as well save the expense." Even later, when an ostensible attempt had been made to fix a schedule of rates, the architect who quoted the schedule was likely to be informed that these were only nominal, and that the brokers could always get the minimum rate; and it was not until within a comparatively short period that the tariff could be relied upon by the architect as having any value, or that he could submit his plans to the managers of the Association, and return to his principal with a definite prospect of a five or ten per cent reduction, if the construction which he proposed was carried out. Then, for the first time, he found his suggestions listened to; his clients began to show a faint interest, not only in the disquisitions upon safe building to which

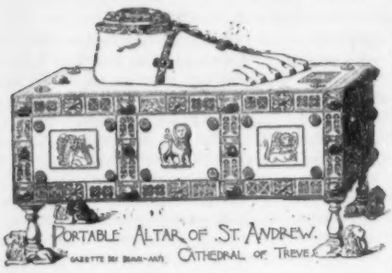
he treated them out of the stores of his professional knowledge, but in the novel devices by which he hoped to gain increased safety, and, with the help of the underwriters, a diminished premium rate. This good work has now gone on for some time, the underwriters sustaining the architects with their allowances in rates, and the architects zealously seconding the underwriters' regulations, and endeavoring to improve upon them, until the character of building in the most hazardous district of New York already shows a change. It would be too much to expect that a hundred million dollars' worth of badly-built stores should be pulled down or remodelled in five or six years, to suit the new ideas of insurance, and many handsome buildings will be a menace to the district as long as they stand; but their number is gradually diminishing, they are less profitable to tenants, through the high rating upon them, and the changed demand is being rapidly met by the erection of structures among which fires like those which have taken place in Worth Street and the neighboring region would be impossible.

"*FIRE AND WATER*" speaks quite strongly in favor of the use of tiles for roof covering, instead of slate, which is in this country almost the only material employed for pitch roofs in cities, or elsewhere in cases where shingles would be objectionable. As that excellent journal truly says, a slate roof under the action of fire, and particularly if water is thrown on it while hot, cracks and flies in all directions, opening crevices through which a strong draught is immediately set up, increasing the fury of the flames in the building which the roof is supposed to protect. On this account, even cedar shingles are preferred to slate for roofing by many experienced fire engineers, for the reason that, inflammable as they are, the shingles do not fly to pieces when a cinder falls on them, but char, and, until burnt through, at least serve to prevent fire inside the building from breaking out of the roof. Tiles, unlike slates, never crack or fly, but keep their place even when red-hot; and their thickness and non-conducting property enables them to keep the heat from cinders or burning brands for an indefinite time from affecting the boarding beneath them. The main objections to the use of tiles in this country have hitherto been their cost, and the difficulty of laying them so as to keep out our fine, drifting snows; but with a little effort, particularly if architects and insurance managers could act in concert in the matter, both defects might be overcome. A considerable demand would soon make tiles here as cheap as they are in England or France, or Germany, where they are the universal roof covering, and roofs laid with them might easily be made, not only impervious to snow, but proof against the shaking of winds or earthquakes, by laying them in mortar or cement. This, with cheap tiles, would not be an expensive matter, and while a slate roof constantly needs repairs, tiles in cement, laid on a roof of simple form, are almost indestructible. Thousands of roofs in France and Germany, laid in this way four or five hundred years ago, are still in good condition, and they not only are really solid and enduring, but look so, presenting an appearance of substantial comfort which architects well understand.

THE *Builder* gives a curious account of a banking building, recently constructed at Aden, which is well worth the notice of those who have the care of constructions in hot climates. Aden, or rather, Steamer Point, as the commercial part of the city is called, has the reputation of being the hottest inhabited place in the known world. The people who can afford to do so live among the hills behind the city, about the reservoirs which supply the municipal water-works, and so contrive to get a little cool air at night; but they must spend their daylight hours in the town, and they are quite willing to go to a good deal of expense to make their counting-rooms endurable. Although the place is nearly surrounded by a cordon of bare, rocky hills, there is no stone which proves durable for building, while wood, even if the white ants should spare it, soon decays in the thick moist air; so that there are practically no materials in the place fit for a permanent construction, and if there were any, the only workmen pretending to any skill in building are Chinese carpenters, who can only imitate what they are shown, and have no idea of working from drawings. Under these circumstances, it was natural that the architect, Mr. Alexander Kersey, of London, should have decided to build his banking-house of concrete, a part of the materials for which could be obtained on the spot, while nothing but the lowest grade of labor would be required for employing them properly. As a support for the concrete, a framework of iron beams and uprights was designed, forming a skeleton of the entire building. This metal skeleton was all fitted together in England, the bolt-holes drilled, and the pieces then numbered, taken apart, packed, and shipped to Aden, where they were put up again without difficulty. With the ironwork was sent Portland cement for the concrete, together with materials for plastering, and some ornamental details in artificial stone. A base-course was built of native stone, and the rest of the superstructure made complete of concrete, using the local pumice-stone, ground fine, for sand, and the coarser lumps for aggregate. With the English cement this formed a remarkably strong and light concrete, admirably suited to its purpose. The floors and roofs were made of the same concrete, supported by iron beams, and, for the sake of appearance, borders of tiles were set around the floors, and the space between finished with colored cement, trowelled to a smooth surface, while the ceilings and walls were plastered in a somewhat elaborate manner. As an indispensable part of the furniture, each of the bed-rooms which occupied the third story, and were intended for the bank officers and clerks, was fitted with a plunge bath, consisting of a large tank lined with tiles. It is hardly necessary to say that the exterior, as usual in hot climates, was shaded by verandas and arcaded porticos, and all doors and windows, both inside and outside the house, were fitted with blinds, made, however, so as to close tight during sand storms, which not unfrequently occur. So far, the structure has given great satisfaction, the concrete roof, particularly, which is made double, with an enclosed air-space, proving impervious to the heat of the sun; and we should hardly know what improvement upon it to suggest, except, perhaps, a cool-air supply, derived, like that which refreshes in summer the office of the New Orleans *Picayune*, from a jet of water falling in spray through a high vertical shaft. It may be that the saturated condition of the Aden atmosphere would prevent the evaporation which gives its cooling effect to the spray; and water may be too precious in that desert country to use in this way; but if fresh water could not be spared, the Red Sea is at the door, and a steam-pump would supply salt water in almost unlimited quantity.

RETURNING from the Arabian desert to chilly England, the same number of the *Builder* describes two occurrences of a sort familiar enough to us, who enjoy most of the experiences of the Equator and the North Pole every twelve months, but rare in the comparatively mild London climate. It seems that a cold day came recently upon the city, and many of the house water-pipes, which are usually left in what we should call a deplorably unprotected state, froze. In a certain house at Mill Hill Park, the cook lighted a fire, as usual, in the kitchen range. It was Sunday, and between the time when the fire of the day before went out and that when the new one was lighted, a longer time had elapsed than was generally the case, and in the meantime the pipes had frozen. It is hardly necessary to say that in a few minutes the "boiler," or, as we should call it, the water-front, exploded, instantly killing the housekeeper, the cook's sister, who was standing near. The coroner was called in, and, after remarking that he had a few hours before been summoned to consider the case of a boy who was killed in another part of London in precisely the same way, began to collect the opinions of his jury upon the matter. We all know something of the learning which is evoked upon such occasions, and it is not surprising to hear that one of the witnesses explained the accident on the theory that the fire had caused the water in the water-front to "boil away," and that when the heat had been conducted along the supply-pipe to the frozen place, the ice suddenly melted and ran into the water-front, which "being, as it were, sealed, with no escape for the steam," immediately burst. How this gentleman accounted for the "boiling away" of the water originally in the water-front, which he considered to be "sealed" against the escape of steam from melted ice, does not appear; but the most probable theory of the accident, that the pipes on both sides of the water-front were frozen, so that the pressure in it, when heated, accumulated until it gave way, seems to have been too simple to occur to any one. One of the jury, who appeared to know something of the subject, mentioned that a valve was made for placing on boilers of the kind, which prevented explosions, and should be always used. We can hardly imagine what this valve may be, but it ought to be remembered that few safety-valves, even if looked after with much more care than such things get in kitchens, would give much security against explosion under the conditions often present when hot-water pipes are allowed to freeze.

ENTHUSIASM AND ENTHUSIASM IN ART.



P. NOTHING great was ever done without enthusiasm.

Q. Do you mean nothing good and great?

P. I am not much inclined to regard anything as truly great that is not good. So much, however, must be conceded to the conventions of speech as to include in greatness some very flagitious achievements.

Q. How stands the condition of enthusiasm in regard to these?

P. We must needs admit a true and a false enthusiasm, and distinguish them accordingly as their objects are worthy or unworthy; that is, as they are competent to stand the test of accurate moral judgment, which is, in fact, the test of truth. The basis of enthusiasm is admiration, and, therefore, an object of enthusiasm is necessarily believed to be good according to the appreciation, faulty as it may be, of the enthusiast.

Q. Then the builders of the pyramids were enthusiasts, and the exterminators of the Albigenses?

P. Even so; no less than Columbus the navigator and Howard the philanthropist. And so far, therefore, it is clear that we cannot safely accept the sincerity of enthusiasm as entitling it to our sympathy. This caution is the more important, as enthusiasm is highly contagious. We say of the subject of it, that he himself is liable to be carried away by the excitement; and no less certain is the liability of such excitement to set up the like, as if by induction, among those who seem affected by it merely in consequence of proximity. Indeed, the derivation of the word and its definitions are sufficient to enforce such a warning.

Q. What and which do you refer to?

P. The Greek word enthusiasm is a combination of "God" and "within," implying inspiration, or rather possession, by a God; and the termination of the word is the form which implies sustained habit. The ancient application of it was to such real or supposed cases as the exalted condition of a prophet or prophetess, when the words that were uttered with all the fervor of passion and the energy of seeming conviction, were believed to be really inspired by a divine power finding utterance through the human organ. These utterances were often in the form of verse, and, as indeed the nearest approach to the same conditions, apart from the supernatural element, were recognized in the case of poets. The condition of high poetical excitement is so elevated beyond the ordinary excitements of mankind as to seem akin to the supernatural, and the venders of oracles could not but adopt the same form. The poet not only originates in marvellous perfection what the rest of mankind would be unable to produce with whatever degree of zeal and labor, but he constantly does so in a manner which seems to imply that he himself can neither explain nor command the process of his invention and happiness of his expression. Not merely out of the fullness of his heart does his mouth speak, nor at the dictates of his understanding; he rather obeys an impulse of imagination which, for the time, takes resistless command of thoughts and feelings together. By the contagiousness already alluded to, this enthusiasm will extend in this degree to whoever worthily appreciates the poetry. "If I am to deliver your verses as you would have me," said the actress to Voltaire, "the audience will think I am possessed." "If you are to do justice to my verses," was the reply, "you must not only seem, but *be* possessed."

Q. We are familiar, however, with the phrase "to be possessed by a devil"; and it expresses, I suppose, that subjection to a false enthusiasm at which we have already had a glimpse.

P. Enthusiasm, however, as enthusiasm, is one and indivisible; the misdirection of it is in no way attached to its essence. Robert Southey could never have been sustained through the unremunerative labor of composing his ponderous epics, but by the enthusiasm that assured him he was laying the foundations of deathless fame. This was a mistake, but the inspiring sentiment was a warm glow of refined pleasure, a sense of exalted admiration at the contemplation of the idea which he was excited to realize.

Such, it will be easily understood, is the nature of enthusiasm, that when it once gains the command there is but poor chance of calm judgment asserting control; and yet it is only on the strength of a certain basis of reasonableness that enthusiasm is saved from being an infliction and a misfortune. The force of enthusiasm is due to the stimulative power of imagination, which gives both definiteness and embellishment to an object of admiration; but imagination is given to fretting under the rule of sober reason and serious enquiry. To reason and analysis, therefore, must be secured an early opportunity, while imagination is kept in temporary check; there is no fear that it will be extinguished in a truly artistic nature. With such it is ever after the thoughts have been sent to range abroad in one direction now and now another, and still resolutely recalled and collated with the primary interest, that the most valuable imaginative crisis arrives. The crisis may be momentary, but it is conclusive for great issues. Influences intellectual, imaginative, sympathetic, fall in together and cluster around a central idea; and the resulting combination, though still it may be but a germ, takes every passion prisoner; love, admiration, enthusiasm are stimulated by it at first, and recur in all their freshness and energy whenever the mind recurs to it.

Q. I perfectly apprehend and assent to the genesis of artistic, or, indeed, other enthusiasm, as you set it forth; but I lose myself in a maze of abstractions and would fain have a concrete instance to hold hard by.

P. You are fully entitled to one. The most concrete of the arts is architecture, perhaps, and let the instance be architectural. The world happens, let us say, at the present time to be in want of a new admiralty; the site is determined; the accommodation prescribed in respect of a certain number of apartments of special dimensions and in somewhat complicated communication. Experience and intelligence will have more to do than imagination in fitting these elements advantageously into groups and sequences. Of this task much must be undertaken by intelligence alone; but the conditions are not so precise and rigid as to exclude all exercise of imagination; the reasoning powers, indeed, may often be thankful for imagination to come to the rescue when plodding processes of deduction have seemed to conduct, at least to what is little better, than the impracticable. Imagination which is without any responsibility for the difficulty is equally disembarrassed in sweeping away what has cost so much labor, in challenging one assumption after another, suggesting alternative possibilities; then the way is clear for presenting various forms of the most desirable combinations which are likely enough to contain the elements of the most acceptable solution, be it, after all, of necessity, a compromise. Such is the

function of imagination, even when bound to the service of the T-square and protractor. But it has higher services to render in the interests of expressive art. Such art has more to do than merely clothe the architectural skeleton; the perfection of the framework itself depends upon proportion, and this must be governed by taste inspired by the genius of the occasion. But inspiration depends on sympathy and sentiment, and these of appropriate variety, vivacity and dignity. It is not too much to ask that the architect of an admiralty should be imbued with a sense of the great importance of a centre of administration and organization, — of the very home and heart-source of energies on which national safety and national honor are promoted and preserved; that he should identify his feelings for the time with those of the most distingnished of a noble profession, from whose thoughts, amidst all dangers and perplexities, in storm, in battle, in negotiation, the image of this structure as material, symbol and embodiment of all their motives and purposes and aspirations, will not long be absent.

Q. Really, it appears to me that you are making a large demand upon your artist. It should be little more that the very air of the main staircase should waft the saltness of a sea breeze.

P. I do not think it impossible for architecture to receive such special treatment, and that not alone in its accessories, as to convey associations which are as stimulative of special reminiscences as your hypothetical briny whiff from the waves. Is it extravagant to demand that an admiralty shall be as expressive and impressive in its way and its degree as a church on the one hand or a prison on the other? We know too well that architectural style may be grossly inappropriate. Are not the groans audible, the protests articulate, of judges who administer the law of modern times in a building which aggravates its inconveniences by incongruous mediævalisms out of harmony with all progressive legislation? Graduated offensivenesses of discord are divergences from a harmony, but by the law of progress demonstrate its possibility. I do not pretend to explain how a naval character is to be given to architecture, though it is intelligible enough that incongruity with naval characteristics is a danger and can be avoided. My simple point is this: I can conceive that an artist, having fully digested the conditions of the supposed architectural problem, possessed, moreover, of a lively sense of all its bearings on the associations and sympathies of those chiefly interested in it, nationally and professionally, and having also the gift of creative — that is, of true poetic imagination, will ultimately, as he ruminates — "keeping the subject," as Sir Isaac Newton said, "constantly before the mind" — find his ideas fall into order and constitute a unity replete with all the charm and vitality of truthfulness and beauty. It is such a recognition that constitutes the ideal. The later endeavor to realize it has difficulties and struggles of its own. But this ideal is the true object of artistic enthusiasm; it is by recurrence to it that a sense of admiration, an inflow of ideas and images, an outburst of adventurous energy, revive inexhaustibility. Such a birth of invention is constantly sudden, but it can only manifest itself so suddenly because it has been long insensibly developing.

> All thoughts, all passions, all desires — says Coleridge —
> Whatever stirs this mortal frame.
> Are all but ministers of Love
> And feed his holy flame.

They feed it because love in whatever form is enthusiasm ever; and enthusiasm is a general exaltation of the faculties, and calls forth and commands the resources of all, — all that has been acquired and all powers of further acquisition, to concentrate them upon one single but all-comprehensive enterprise. We read in Fichte that the full account of all the causes which have produced a pebble and given it the particular position on the beach that it occupies, would be nothing less than an exposition of all the forces of the universe and their operations from all time. No less certain it is that when a conception worthy of the highest enthusiasm is born in the artistic mind it is an outcome moulded by all his past experiences, of courses of reflection even long since forgotten — of passions ever long since extinct. Thoughts and emotions may fade, but they leave their trace on the sensibility to enthusiasm, and on the character of the enthusiasm of which the mind becomes and remains susceptible.

W. Watkiss Lloyd.

Amount of Timber required for a Ship. — Fancy a single ship requiring 2,000 big oak trees in her construction. We can hardly conceive the enormous drain on our forests a fleet of similarly-constructed vessels would entail. From the calculations made, however, by the Commissioners of Inland Revenue a 74-gun wooden ship contained about 2,000 tons of oak, which, at the rate of a load and a half per ton, would give 3,000 loads of timber, and consequently would require 2,000 trees to build her. As not more than 40 oaks, yielding a load and a half, are reckoned to stand upon one acre of ground, it would take, therefore, 50 acres to produce the oak necessary to build a 74-gun frigate. It will be easy to understand what a vast saving of timber the adoption of iron-constructed vessels has brought about — not, however, to such an extent in the navy as at first blush might be supposed, though the saving in the merchant service must have been considerable. The hulls of the ships forming Her Majesty's fleet are still partly wood, the backing to the iron plates being an important factor in the consumption of timber, though this, after all, is a mere bagatelle as compared with what was formerly required, and certainly does not affect the oak market, the armour backing being principally teak.— *Timber Trades Journal.*

AMERICAN INSTITUTE OF ARCHITECTS.[1] — I.

Authorized Report, condensed.

In the Cloister of St. Trophime, Arles.

The recent Convention of the American Institute of Architects was the first held in New York for seven years, and this, perhaps, partly explains the more than average attendance, notwithstanding the inconveniently and unprecedentedly late season of the year for which it was called. Upward of fifty, or somewhat more than a quarter of the professional members of the Institute, were present; though several of the most unfailing attendants of the previous annual gatherings were absent. So far, however, as we observed, none of its Honorary and but one or two of its Corresponding members availed themselves of the occasion to put themselves *en rapport* with the current developments of the specialty for amateur affiliation with which their election proves them to have been considered eligible. Perhaps this was because notifications of the Convention were not sent to them. If so, it is but another instance of much that is regretable in the administration of the Institute; traceable undoubtedly to its lack of resources, wherewith to enlist sufficient clerical force for current purposes; while it is obviously impossible permanently to secure adequate service on its higher planes, at the continued cost of the party from whom such service is expected.

As might be presumed, the New York Chapter was most largely represented, over twenty resident members having attended. New England sent nine or ten; Philadelphia, Baltimore and Washington somewhat over that; three or four came from the West, one from as far south as Alabama, and the remainder from various centres between the points named.

The Convention was held in one of the costliest and finest structures in the city, that belonging to the New York Mutual Life Insurance Co., the splendid Director's Room of which had been kindly placed at the disposal of the Institute through the fraternal intervention of the architect of the building, Mr. C. W. Clinton.

First Day, Morning. — The hour set in the programme for opening the first day's session was already past, when a telegram was received from the Secretary, Mr. Geo. C. Mason, Jr., of Newport, R. I., announcing that a sudden accident in his family would make it impossible for him to officiate as, up to the last moment, he had fully intended to do. Mr. Bloor was thereupon, as usual, compelled to fill the gap.

The venerable President, Thomas U. Walter, L.L.D., architect of the National Capitol at Washington, and of many other of the most important buildings in the country, then — though suffering from severe indisposition — opened the proceedings with a short address, referring to the enhanced artistic interest observable in comparatively small and unimportant brick structures of late years, largely through the use of decorative terra-cotta; noting the popular error that comfort, convenience and good taste in building operations are necessarily costly elements; adverting to the revival in domestic work, with modifications suitable to our era and habits, of the styles prevailing in the seventeenth and eighteenth centuries; calling attention to the remarkable spread of architectural societies in the West, of which he enumerated a dozen, headed by the Western Architectural Association; and suggesting that arrangements might be made with all such existing or prospective organizations to communicate annually with the American Institute of Architects such information as might enable the Institute, the mother of all of them, to furnish the entire confederative fraternity with succinct accounts of the status of the profession throughout the country.

The report of the Board of Trustees, referring to the bill now before Congress for the regulation of the architectural service of the Federal Government, stated that a committee, consisting of Messrs. Bloor, Hatfield and Littell, had been appointed to act with a joint committee, Messrs. Adler, Burnham and Alexander, on the part of the Western Association of Architects; that the duties of this Committee of Conference had been of a very responsible and onerous nature, and had involved no light labor of correspondence, as well as a visit to Washington by Messrs. Adler, Burnham and Bloor. The previous visit of Mr. Bloor to the Second Annual Convention of the Western Association of Architects, held in St. Louis, was noted, and the recommendation made that the committee be continued, and its work — begun twelve years ago by the Institute — steadily pursued.

A question of professional practice and etiquette had been raised between two members of the Institute, and presented to the Board; and, after voluminous correspondence and much discussion, had been laid on the table, on the understanding that the parties to the dispute should, if so disposed, lay their grievance before the Convention.

A letter, accompanied by a number of statistical documents, had been received from the Commission of Enquiry for the Revision of the Customs Tariff, appointed by the Italian Government, asking for information, which had been furnished, as to the titles of works on

[1] Twentieth Annual Convention of the American Institute of Architects, held in New York, on Wednesday and Thursday, 1st and 2d December, 1886.

political economy as exemplified in American industries in competition with the current world-wide commercial depression.

The paper on "Architects' Protective Associations" (published in the nineteenth *Proceedings*), by Mr. T. M. Clark, was referred to, and regret expressed that the author, owing to his professional engagements, and his absence abroad, had been prevented from a further development of the subject for presentation at the current convention.

At the request of the Boston Chapter, a circular letter, referring to its proposed memorial to the late H. H. Richardson, had been forwarded by the Secretary to each of the Chapters of the Institute, but without eliciting any response. The death, during the year, of that distinguished Fellow of the Institute, as also of Associate N. G. Starkweather, and of its eminent English Honorary Members, James Fergusson and Thos. L. Donaldson, as also of Lysandros Kaftangioglon, of Athens, Greece, had been the occasion of suitable resolutions of appreciation and respect on the part of the Board, which had been entered in their minutes, and transmitted to the family of each with proper expressions of sympathy and condolence. Those in memory of Richardson and Fergusson had been widely published in architectural serials, both at home and abroad.

The additions to the membership during the year had been seven Associates and six Fellows by first election, while seven members of the former grade had been promoted to Fellowship, a number of candidates' applications were under consideration, and correspondence was on foot looking to the establishment of Chapters in Pittsburgh and Indianapolis.

The Board had held seventeen meetings during the year, involving much labor, by far the greater burden of the drudgery inevitably attached to it falling of course on the Secretary. The number of letters received and answered had been very large, and embraced a wide range of subjects on professional matters in general, as well as on those pertaining more especially to the Institute. The elections had been numerous, involving the sending out to existing members of notices requiring the writing of about two thousand four hundred words in the case of each candidate.

The report called for a warm welcome, and God-speed to the architectural organizations springing up in the West, and invited attention to the fact that the economy in clerical and routine expenses, rendered necessary by the very slender pecuniary resources of the Institute, militates much to its disadvantage, inasmuch as opportunities are continually arising where much good could be accomplished, and the interests of the profession advanced were the Trustees in possession of a larger revenue. And it concluded by emphasizing the facts that the interests of the Institute and of the profession at large are one and the same, and that, though it stands as a bulwark behind the individual, sustaining him in his work, and interposing its time-honored schedule of professional practice between him and the evils of unregulated practice; it cannot, on the other hand, progress or maintain its hold upon the public without the steady support of its individual members.

The Treasurer's report called attention to the necessity of taking some steps to increase the Institute revenue, at present quite incommensurate to the important aims and purposes involved in its labors, and referred to a proposition moved in the Board by the Treasurer, but rejected by the Trustees, for establishing a grade of "Registered Subscribers," consisting of persons interested in the various trades and manufactures, more or less connected with building operations, whose contributions, while of value to the Institute, might be in a measure compensated for by the issue to them of its publications, including a copy of its annual Proceedings. Alluding to the penalty — twenty per cent — for delayed payment of dues, it noted that the excess had been cheerfully paid, sometimes after three or four years of delinquency, thus showing the wisdom of the action that substituted this rule in place of that of absolute dismissal from membership, which was formerly in force. The report also reverted to the old-time proposition (which was indeed put into practice for a short time) of issuing a monthly bulletin of the transactions of the Board, as likely to keep alive the interest of members and incite candidateship; and urged the project of the Institute securing a home for itself, the nucleus of a building fund having existed for several years in the shape of a gift of one hundred dollars, by an old member, and an appropriation by the Trustees of the general fund of a similar amount, both together, with their accumulated interest, now amounting to $267.25. The Treasurer's figures showed the following results for the year ending 1st October, 1886:

Receipts, ...	$1,653.14
Expenditures, ...	1,512.10
Balance . . .	$141.04

but with liabilities on running account of several hundred dollars above the balance, thus leaving, in reality, a considerable deficit to be liquidated from future receipts.

Messrs. Stone, Holly and Hunt were appointed Auditing Committee on the Treasurer's report.

Mr. Kendall announced the arrival of two delegates from the Western Association of Architects, Messrs. Root and Sidney Smith, and moved that they be welcomed by the Convention, and invited to participate in it. This was unanimously carried, and the gentlemen took their seats at the table.

Mr. Root, — I thank you, gentlemen, on behalf of myself and my *confrères*, for your courtesy. We shall always be glad to cooperate with you, both as individuals and as members of the Western Association of Architects. We do not understand that the Western Association is in any sense a rival of your Association; but its purpose, we know, is to continue the work so well begun here, and, more particularly, to adapt our Association to the cruder methods of the so-called "Wild West."

The reports on hand from various Chapters were then read.

The Baltimore Chapter, through its Secretary, J. A. Wilson, reported that it had a good library, but that few meetings had been held during the year.

The Cincinnati Chapter, Charles Crapsey, Secretary, simply renewed its allegiance to the Institute, and gave the usual list of members and officers.

The New York Chapter, A. J. Bloor, Secretary, reported an increase of four members, and stated that its Examination Committee had been called upon oftener than ever before to exercise, under the building law, their precautionary and discriminative functions in the case of buildings condemned by the Fire-department as unsafe, and the chairman of the committee had been elected chairman of a joint committee consisting of the Honorable Board of Fire Commissioners and the Board of Examiners of the Building Bureau to amend the present building law on a number of points in which it is still defective. This is a noteworthy step towards that official connection and that community of interests between governmental bodies and the profession which exist so largely in Europe, and which directly, and still more indirectly, contributes so effectively to the advantage alike of the profession, of the governmental authorities, and of the public.

The Willard Commission for the selection, purchase and placing of an architectural collection for the City of New York, and consisting of Messrs. N. Le Brun, Bloor, and Littell, are considering the important question of what to choose out of the selections made by their agent, Mr. Pierre L. Le Brun, and also the hardly less-important question of how to manage transportation from Europe at the least risk of breakage. This they have the opportunity to do without undue haste while waiting for the quarters to be appropriated to their collection, when the trustees of the Metropolitan Museum of Art have succeeded in building the extension to their structure, so long in contemplation and of which the foundations are now being laid. Meanwhile the $75,000 at the disposal of the commission, under the will of the public-spirited and far-sighted donor, Levi Hale Willard, are accumulating such interest as experienced financiers like Mr. John Taylor Johnston and Mr. Mr. Henry G. Marquand, the president and treasurer of the Museum, will doubtless secure for it.

Mr. Kendall, as president of the Chapter, had again under the law been called on to give his opinion as to the merits of a piece of statuary offered to the Central Park; in this case a colossal bronze bust of Washington Irving.

At the last meeting of the Chapter the secretary exhibited a number of photographic views showing the architecture and scenery of the Bermudas, which he had collected during a recent sojourn in those beautiful islands for the recuperation of his health.

As no convention of the Institute had been held in New York for seven years, and as members of the New York Chapter had been treated by members of other Chapters with the best hospitalities to be bought in their localities when conventions of the Institute have been held among them, the members of the Chapter had been called on by the Committee of Arrangements for this convention to contribute funds for the usual annual dinner; any possible surplus to be used for the increase of its library or other needful expenses.

The Philadelphia Chapter, Arthur Truscott, Secretary, reported that monthly social meetings at the members' residences had been held during the past winter. The meetings were well attended and were successful; questions of professional interest and matters of business being discussed during the evening.

The report went on to say that "the prestige of the Chapter has been recognized or acknowledged by the municipal authorities in the matter of the threatened repeal of the bay-window ordinance. This ordinance permits the erection of bay or oriel windows, above the first story, of any shape or plan inscribed within an angle of twenty degrees intersecting the party line, the projection being limited to four feet. The ordinance was repealed by Councils, but on objection being urged and arguments advanced by members of the Chapter the mayor vetoed it. The veto was sustained by Councils, no efforts being made by them to pass an ordinance over it.

Our Chapter has appointed a committee to confer with the carpenters' and master-bricklayers' association, at their request, in regard to the framing and presenting to the Legislature of new and more suitable building-laws for this city.

The discussions in which the Chapter took part, some years ago, in regard to "rules and regulations for the performing of plumbing and drainage," have at last resulted in the enactment of the rules and regulations proposed into an ordinance which now governs this class of work in the city.

The Rhode Island Chapter, E. I Nickerson, secretary, reported that it has continued to meet monthly, and to dine in one of the private parlors of the Narragansett Hotel. There has been an average attendance of more than nine in a Providence membership of thirteen.

The Committee on Entertainment prepared in advance a list of subjects for discussion at the several meetings, and also at each meeting presented an architectural problem from which impromptu sketches were produced. The variety of treatment shown has added much interest to each occasion.

The annual meeting was held with the Newport members' and an opportunity was afforded to examine some of the later work in that city.

The report of the Chicago Chapter was not received till the following day, when it was read. Since the Convention reports have been received from the Boston and San Francisco Chapters.

The Chicago Chapter, Alfred F. Pashley, secretary, reported that its meetings were in the nature of social gatherings. No set papers were read, but topics of general interest were incidently brought up and freely discussed. There is only one regular meeting in the year, but special meetings were called by the Executive Committee, if required. A new code of by-laws had been adopted. The last meeting of the year was held in the form of a banquet, when a committee was appointed to consider the proposition of the Boston Chapter to erect a monument to the memory of H. H. Richardson.

The Boston Chapter, E. M. Wheelwright, secretary, reports that "the dinners and meetings have been well attended during the year."

The action of the Court House Commissioners, in departing from the terms of the competition for the new Suffolk County Court House, made necessary a public protest from the society, published in the daily newspapers.

Changes have been made in the by-laws of the society. The most important is as follows;

"No person may be a candidate for junior membership of the society unless he has received the degree of A. B., B. S., or C. E., at some well-accredited institution of learning, or unless he has spent two years in the study of the profession, at some well-accredited foreign institution of learning; or unless he has been an associate member of some architectural society, for entrance to which a sufficient examination is required; or unless he has received an average of at least sixty per cent in the Rotch Travelling Scholarship examination. All candidates for junior membership must have served at least two years in an architect's office."

A new class of members, called associate members, has been established, constituted as follows:

"Associate members shall be such architects, residing outside a radius of thirty miles from Boston, who prefer not to join the Society as Fellows, and such other persons, not practitioners of the profession, whose membership may be thought desirable."

The Society has been entrusted with the funds and property of the Architectural Association of Boston, to be held in trust; the funds to be used in aid of the publication of the sketch-book instituted by the Association, or in publications of a kindred nature.

The Society has also been entrusted with the funds of the "Portfolio Club," to be used as a guarantee fund for publication purposes. This fund was earned by the sale of the "*Portfolio*," and was intended to form the nucleus for a travelling-scholarship fund, but as the Rotch Fund answers the original object of this fund, the trustees of the "Portfolio" Fund have made the above disposition of it.

There were this year three competitors for the Rotch Travelling Scholarship. The scholarship was given to Mr. Geo. F. Newton, of Boston. The sketches and drawings sent by the holders of this scholarship have been highly satisfactory to the Committee.

A committee has been appointed to raise subscriptions for a memorial to the late Henry Hobson Richardson, and the coöperation of the other Chapter of the Institute has been requested; but little encouragement for the project has thus far been received.

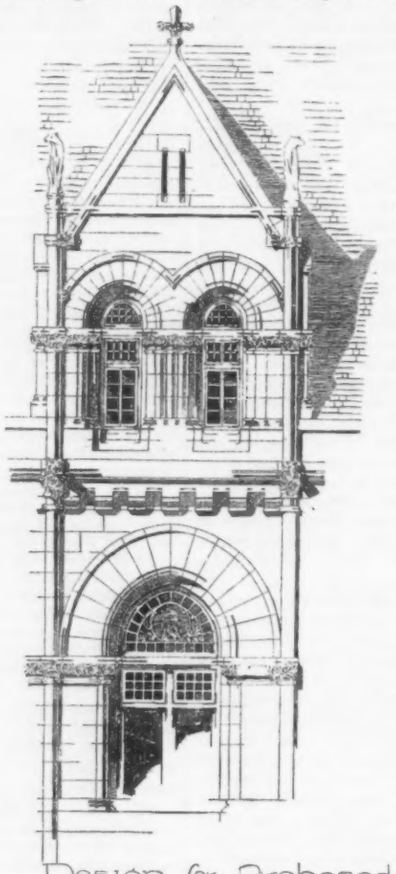
A very interesting exhibition of architectural drawings was given by the Society in the Art-Club Gallery. The exhibition was open nearly a month, was fairly-well attended, and excited very favorable criticism by the press. It was the first exhibition of purely architectural drawings ever given in this city. The expense of this enterprise, however, does not warrant its repetition under similar conditions, although all agree as to the great benefit to come to architects and draughtsmen by such exhibitions.

On various evenings the Society has had the following entertainments:

Mr. Henry Van Brunt read a paper to the Society upon the "Tendency of Modern Architecture." Mr. Frank H. Cushing gave the Society a description of the "Indian Architecture of the Southwest." Mr. Frederick Law Olmsted described the "Back Bay and Muddy River Improvements." Professor E. S. Morse described "Japanese Dwellings and Architecture."

An exhibition of Algerian photographs, and exhibition of the premiated designs for the "Suffolk County Court-House Competition."

The San Francisco Chapter, B. E. Hendricksen, Secretary, reports an increase of membership, bringing the total up to fifty-four persons, forty-four of them being of its highest professional grade, Fellows. At its meetings several interesting papers were read, which were afterwards published in the *California Architect and Building News*. Architectural practice is noted as in a flourishing condition in the field of the Chapter, and complaint made of the paucity of communications from the Institute.



The Secretary for Foreign Correspondence, W. L. B. Jenney, reported that he had sent a message of condolence to the widow of Lysander Kaftangioglon, late Honorary Member of the Institute, and had given a letter to Mr. James B. Willett, Associate, of Chicago, for presentation, during a trip abroad, to foreign architectural societies.

All the reports of the Chapters that had been presented, together with the Trustees' report, and the Treasurer's, so far as it related to points other than current financial ones, were, on motion of the Secretary, referred for consideration to a special committee, appointed by the Chair, *viz.*, Messrs. Renwick, Cutler and Frederick.

The Chair also appointed Messrs. Hunt, Nickerson and Wallingford, as a Committee on Nomination of Officers and Standing-Committees.

The Secretary read Mr. T. M. Clark's paper, in the Nineteenth *Proceedings*, on Architects' Protective Associations.

Mr. Kendall and Mr. Frederick thought the paper should not be discussed in Mr. Clark's absence.

Mr. Bloor thought that though Mr. Clark was not present, and, though his engagements and his absence in Europe had prevented him from adding to the paper what he had proposed, he would, nevertheless, doubtless be glad to have the subject discussed by the Convention. But if the Convention was not prepared to discuss it, he moved that it be referred for consideration to a special committee, of which Mr. Clark should be a member. Mr. Hatfield moved that Mr. Frederick be appointed a provisional committee of one, to consider Mr. Clark's paper and report at the next day's session. Carried.

Mr. Glenn Brown read a "Report on Experiments in Trap Siphonage, at the Museum of Hygiene, U. S. Navy Department, Washington, D. C." [Published in the *American Architect* of January 15, 1887.]

Mr. Frederick read a paper on "The Ethics of Architectural Practice [published in the *American Architect* of January 1, 1887.] A Special Committee, Messrs. Wallingford, Cutler and Moser, was appointed to investigate and report on any unprofessional conduct of any member of the Institute, to which reference might have been made in Mr. Frederick's paper.

The Chair announced that Mr. Bell, the Supervising Architect of the Treasury Department, wished the Convention to be informed that a pamphlet, giving a history of his office, would be found at Professor Ware's quarters, in Columbia College, for distribution among the members of the Institute.

The Convention then adjourned, to meet informally at Professor Ware's quarters, in Columbia College, the same evening.

First Day, Afternoon. — During the afternoon the visiting architects, under the guidance of resident members, visited, in groups, various structures of note, recently erected, beginning with that in which the Convention was held.

First Day, Evening. — In the evening there was a large attendance of visiting and resident members at the Architectural School in Columbia College, where they were informally received by Professor Ware. Scattered throughout his rooms, on the walls and tables, were recent designs from the office of the Supervising Architect of the Treasury Department, in Washington, and the competitive drawings for the Kansas City Chamber of Commerce. There was also a considerable collection of photographs of domestic architecture in the Bermudas, selected by Mr. Bloor during two visits to those islands.

Mr. Moser, with characteristic humor and ingenuity, produced on the blackboard some grotesque diagrams, to show that the cut of clothes worn by Englishmen, Frenchmen and Germans is differentiated by their national characteristics. His clever lines reminded one of Cæsar Daly's half-serious and half-jesting illustrations, in one of the early copies of the *Revue Générale*, in support of the theory that the style of roof prevalent in a nation is evolved from its usual head-dress.

[To be continued.]

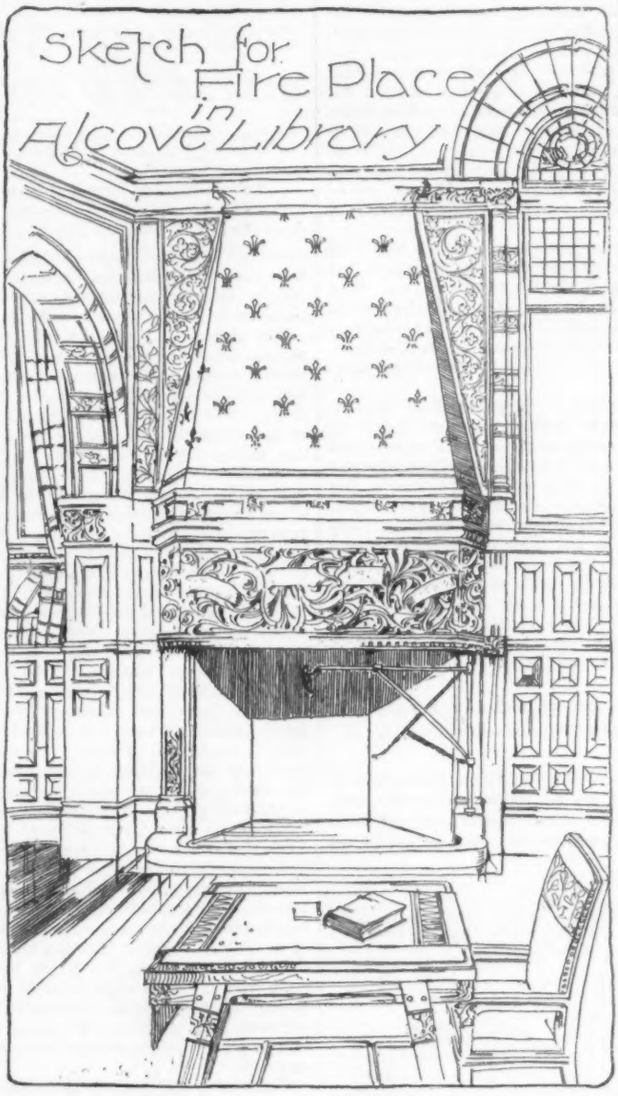
THE ILLUSTRATIONS

[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

THE GREEK GALLERY OF THE MUSEUM OF FINE ARTS, BOSTON, MASS.

[Gelatine Print, issued only with the Imperial Edition.]

THE bas-reliefs of the Temple of Apollo Epicurius (the Helper), in Phigalia, near Bassæ in Arcadia, now in the British Museum, from which the casts shown in the frieze of this room were taken, consist of twenty-four slabs. The temple was built by Ictinus, the architect of the Parthenon, about 430 B. C., and the marbles are said to have been sculptured by Alcamenes, who, after working for a time with Phidias, is represented in history as his competitor. A certain monotonous character, which strikes us in the general aspect of this frieze, is due to the subject, which admits of variety only in the matter of grouping. Variety is only possible to a limited extent in the representation of a series of struggles between Greeks, Amazons, and Centaurs. To attain it the sculptor has introduced such episodes as the bestowal of care upon the wounded, the representation of the dying Amazon sinking to the ground, etc., and has thus often created a happy opposition which heightens the interest, and gives an increased effect of energy to the fighting groups. In the battle of the Amazons, the figure wearing a lion-skin, who is about to strike an Amazon, is recognized as Theseus. The national hero of the Greeks again appears in the battle of the Centaurs, near a tree upon which hangs a lion-skin. There also are Apollo, shooting an arrow from his bow; Artemis (Diana) as a charioteer, driving a pair of stags; and Caneus, beating down a Centaur to the earth.



On the left is a cast of Mausolus, colossal statue in the British Museum, found at Halicarnassus by Mr. Charles Newton, in 1857, on the site of the mausoleum erected by Artemisia to the memory of her husband, Mausolus, Prince of Caria, who died in the 107th Olympiad (B. C. 353). This splendid edifice, which was classed as one of the seven wonders of the world, consisted of a square podium or base, four hundred and sixteen feet in circumference and between thirty and forty feet in height, surrounded by an Ionic peristyle.[1] Its four sides were decorated with sculptures by Scopas, Leochares, Timanthus, and Bryaxis, and from its centre rose a truncated pyramid, on the top of which stood a marble chariot drawn by four horses (*quadrigæ*) bearing the figures of Mausolus and Artemisia, or a goddess, as the companion statue is sometimes called. This group was sculptured by Pytheas or Pythis, as we learn from Pliny. The statue of Mausolus is evidently a portrait treated in the heroic style, and the face has a singularly modern appearance, owing to the mustaches, the closely cut beard, and the short hair. Mr. Newton conjectures that the left hand was slightly advanced, and rested on a sceptre. The monarch looks as he describes himself in one of Lucian's Dialogues (*D. Mort*, XXIV.), "a tall, handsome man, formidable in war." He is draped in an ample mantle, under which the chiton is seen upon his breast.

The three small casts on the left, directly under the frieze, are reliefs from the mausoleum at Halicarnassus, now in the British Museum. Of the three distinct friezes dug up by Mr. Newton, at Halicarnassus, one represents Greeks and Amazons fighting; another the battle between the Centaurs and Lapithæ; and the third a chariot race at the funeral games celebrated in honor of Mausolus.

These reliefs are from the first series. In action they resemble the Phigalian marbles shown in the casts above.

The cast in the corresponding position on the other side of the doorway, is a metope, found in the Troad, by Dr. Schliemann. The bas-relief, representing Helios (the sun) guiding his chariot, dates probably from the fourth century B. C.

The Greek vase, at the left of the doorway, is from the Royal Museum of Naples.

The head of Medusa in alto-relief, from the Glyptothek at Munich, called the Rondanini Medusa — after the Roman family in whose possession it remained until 1803, when it was bought by Prince Louis of Bavaria for 4,000 scudi — has been said to be a work of the time of Alexander the Great, on account of the free treatment of the hair; but if so, the sculptor was one who held fast to the traditions of a more ideal theory of art than that of the school of Lysippus. More elaborate in detail, less generalized in form than works of the school of Phidias, it has that same sort of noble beauty which marks the Ludovisi Juno. It corresponds to the interpretation of the myth of Perseus, which makes the Medusa head symbolic of the phenomena of nature. Medusa is the starlit night, solemn in its beauty, and doomed to die at the rising of the sun (*i. e.*, Perseus), while her sisters, the Gorgons, represent total darkness, impenetrable to the sun's rays. In the realistic Medusa type, the face is round, like the full moon, the eyes protrude, the ears are large, and the enormous mouth is armed with sharp fangs. In the idealistic Medusa, of which the Rondanini head is an example, the face is solemn with the solemnity of death, and fascinating in its terrible beauty. Cheerless and sad, stony in its fixed repose, it is like Lamia at the feast, —

> "Some hungry spell that loveliness absorbs,
> There is no recognition in those orbs."—*Keats.*

On the extreme left are shown Castor and Pollux carrying off the daughters of Leucippus, king of Sicyon; bas-relief on a Sarcophagus in the Vatican, in style approaching that of the Phigalian Marbles.

Just above this is a cast of the Vienna sarcophagus, in the Belvidere Palace at Vienna. This famous sculpture is said to have been brought from near Ephesus by Count Fugger, after the battle of Lepanto in 1571. It represents a contest of Greeks and Amazons, and in style as well as subject greatly resembles the frieze of the Mausoleum, from the neighboring city of Halicarnassus.

The large cast on the left is the Barberini Faun, from the Glyptothek at Munich, and was found in the immediate neighborhood of Hadrian's Mausoleum (the Castle of St. Angelo) during the pontificate of Urban VIII (1623–44), and placed in his family palace, that of the Barberini. In 1813 the Crown Prince of Bavaria bought it for 8,000 scudi. It is universally allowed to be an original Greek work, not older than the time of Alexander. Winckelmann supposed that it was one of the statues upon the exterior of the mausoleum, which were hurled down upon the Goths when they besieged it in the sixth century (A. D. 527). Wrapped in profound slumber, the tired Faun, every part of whose huge frame is instinct with life, reclines in an eminently natural and characteristic, if not a noble attitude.

Opposite, on the right hand, is a cast of the Fighting Gladiator, now in the Louvre, which was found at Porta d' Anzio (the ancient Antium) in the early part of the seventeenth century. It was purchased for the Louvre, from Prince Borghese, in 1808. The right arm and the right ear have been restored. A shield was held in the left hand, which still grasps its ring-like handle. The figure has

[1] The tombs of Alyattes at Sardis, and of Porsenna at Clusium (Chiusi), which were also cubes or circles supporting pyramids, were developed out of the tumuli of the heroic ages. They furnished the type of the mausoleum, as it did that of the mausoleums of Augustus and Hadrian at Rome, which, like all great Roman sepulchres, were called mausolea, from the mausoleum of the Prince of Caria.

been erroneously called Achilles and Theseus, though the head is too realistic to be that of a hero or demigod. It represents a warrior fighting in an attitude calculated to display bodily action with full effect. This end was aimed at in the later Greek schools, and, as we learn from the inscription, the statue was made by Agasias, son of Dositheos of Ephesus, who flourished about B. C. 176 (Ol. 150).

On the left in the next room is a cast of the Venus of Milo, the celebrated statue found in 1820, by a peasant named Yorgos, in a subterranean tomb or grotto near Castro, a village of the island of Melos. The Count de Marcellus, French Envoy at the Ottoman Court, purchased the detached fragments and brought them to Paris in 1821. The figure is composed of five pieces of marble, namely, the bust with the head, the draped legs, the two hips, and the "chignon." The great toe of the right foot and the whole of the left foot are restored in plaster. The Count de Clarac, who was Director of the Louvre when the Venus arrived in France, has left a description of a plinth which came with it, upon which an inscription recorded the name of the sculptor Agesandor, son of Merides, a citizen of Meander, a town in Caria. The plinth cannot, however, have belonged to the Venus of Milo, as the town of Meander was not founded until B. C. 261, when art was in too decadent a state to allow us to suppose the production of such a masterpiece possible. It would seem to belong to such a school as that of Scopas, which stood midway between the Phidian, whose idealism was tinged with a modicum of archaic severity, and the Praxitelean, in which all trace of archaism was lost in grace and sensuous beauty. Scopas, contemporary of Philip of Macedon, blended the pure idealism of Phidias with a noble materialism in works distinguished for such lofty grandeur of style as we find in this goddess, and such dramatic power as is coupled with it in his Niobe.

When the statute was taken from the place where it had been hidden during the Commune, it was found that the dampness had caused the upper and lower halves of the figure to separate. The fact was then discovered that a wedge had been inserted between the two parts, which caused the upper half of the body to incline forward out of its proper position. This was removed by M. Ravaisson, the present Director of the Louvre, and the bea uty of the statue manifestly increased.

The casts shown against the rear wall of the gallery form the central group of figures from the western pediment of the Temple at Olympia, by Alcamenes. In this pediment the sculptor represented the struggle between the Centaurs and the Lapithæ, which followed after the attempt of the drunken Eurytion to seize Deidameia, the bride of Peirithoös, at the wedding feast. The colossal male statue, which forms the apex of the composition, represents Apollo in a sufficiently archaic style to distinguish him from the mortals around him.[1] He either held his attribute, the laurel branch, or the Ægis, in his right hand, and presided over the battle as a symbol of divine impartiality, like Athena in the pediments of the Temple of Ægina. The group to the left of Apollo represents Deidameia struggling to free herself from the arms of a Centaur. Mr. Newton calls it "a master work of Athenian art."—*Extracts from the Catalogue.*

COMPETITIVE DESIGN FOR THE CARNEGIE LIBRARY, ALLEGHENY, PA. MR. W. S. FRASER, ARCHITECT, ALLEGHENY, PA.

[We adopt the very unusual course of devoting all the illustrations of this issue to a single design — and that, too, not the successful one — submitted in a recent competition. But since, *comme dessins* to say the least, the work is of unusual excellence we believe that we shall not be too severely chidden.]

In the preparation of this Design the Author has endeavoured to follow the Instructions and to provide substantially the accommodations asked for, while availing himself of the liberty accorded to the Competitors to suggest variations as to additional rooms and their location. Some minor changes have been made and several rooms added which will be described more fully hereafter.
It appeared to him to be a matter of vital importance to so arrange the rooms that economy in time required for serving readers would be

[As the foregoing sample page is enough to indicate the style in which this description was prepared for the Committee's use, we will print the rest in ordinary type.]

combined with such positions that complete supervision to each visitor could be given from librarian's desk. He has, also, so placed Alcove Library that all visitors will have to pass directly before librarian or his assistants to leave or enter it.

The author had given so much thought to the arrangement of the various rooms and the elevations, before the Committee issued their second circular letter regarding reduction in seating capacity in large hall, that he concluded to complete the plans as begun, believing the change to be optional. The author has also exceeded the instructions of the committee and has elevated the building ten feet above lot line, thus giving greater dignity to the building and preventing the possibility of the effect of the library being spoiled at any time by high edifices being erected in the immediate vicinity. It was also thought best, after mature deliberation and study, that a serious mistake would be made in erecting one-story buildings on an enclosed city lot closely surrounded by high business houses, as it would lose the very effect desired in a public institution, *i.e.*, dignity and leadership. The plan is so arranged that should the committee desire, it can be reversed and the Federal-street front be made to face Ohio Street, and *vice versa*, without altering the plan in any particular excepting position of rooms. The principal entrance has been made on Ohio Street. Entering through it a visitor would find himself first in a spacious lobby. Leaving this the principal hall opens before him with the grand staircase directly in front. This hall will be amply lighted by means of a light area of large dimension, which assures abundance of light. Then if he desires to use the library portion of the building, he turns to the left and enters direct into the reading-room; or, passing to the left of the staircase through an ample passage-way, enters the card or catalogue room. Or should he design to enter large or small hall he would turn to the right. The art-rooms would be found directly at head of grand staircase. The reading-room is larger than asked for by committee (as are all rooms excepting large audience-room). The windows are a special feature of this room, being constructed so that light will be thoroughly diffused over entire room. Between this room and card-room is an open ornamental screen serving the dual purpose of helping light card-room, and also giving librarian supervision of reading-room from his desk, while room is separate and distinct from card-room. There is also an entrance to this room from Federal Street. As more people will use this room than any other, it was thought best to give it due prominence both in position and means of entrance and exit.

Connecting and part of this room is the card or catalogue room, with the librarian's desk at one end. At first glance it would seem that this room would be dark, but when one considers the light that would be given by large light area, and through loggia on Federal Street, and through the open screen from reading-room, it can be seen that the light could not possibly be improved upon. The card-room is so placed that it can be used equally from either reading-room or alcove library. Opening from this room is the librarian's private office, with outside entrance, so that he can enter or leave without passing through public part of library, and also be within ready call from his assistants who may need him at desk. The alcove library and its position needs no explanation, as it will be seen at once that this, being a room where reference-books will be kept, perfect quiet and retirement are the first and greatest objects. This room, like all others, is somewhat larger than asked for, but the author found the space could be had and thought none would need it so much as this room. It will be seen that fireplaces are designed for this room (see drawing in report). The author's reason for so doing was to make it as home-like as possible, as reference-searchers

[1] Dr. Treu, who follows Pausanias in supposing this figure to be Peirithoös, suggests that he held the Ægis in his right hand, and with his left grasped a Centaur by the hair.

No. 301

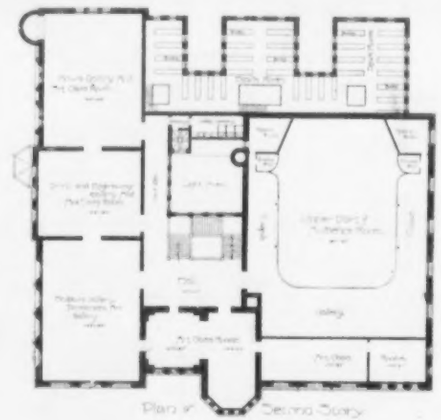
From THE ARCHITECT AND BUILDING NEWS, FEB. 12 1897.

COPYRIGHTED, 1887, TICKNOR & CO.

Design for Proposed CARNEGIE LIBRARY.

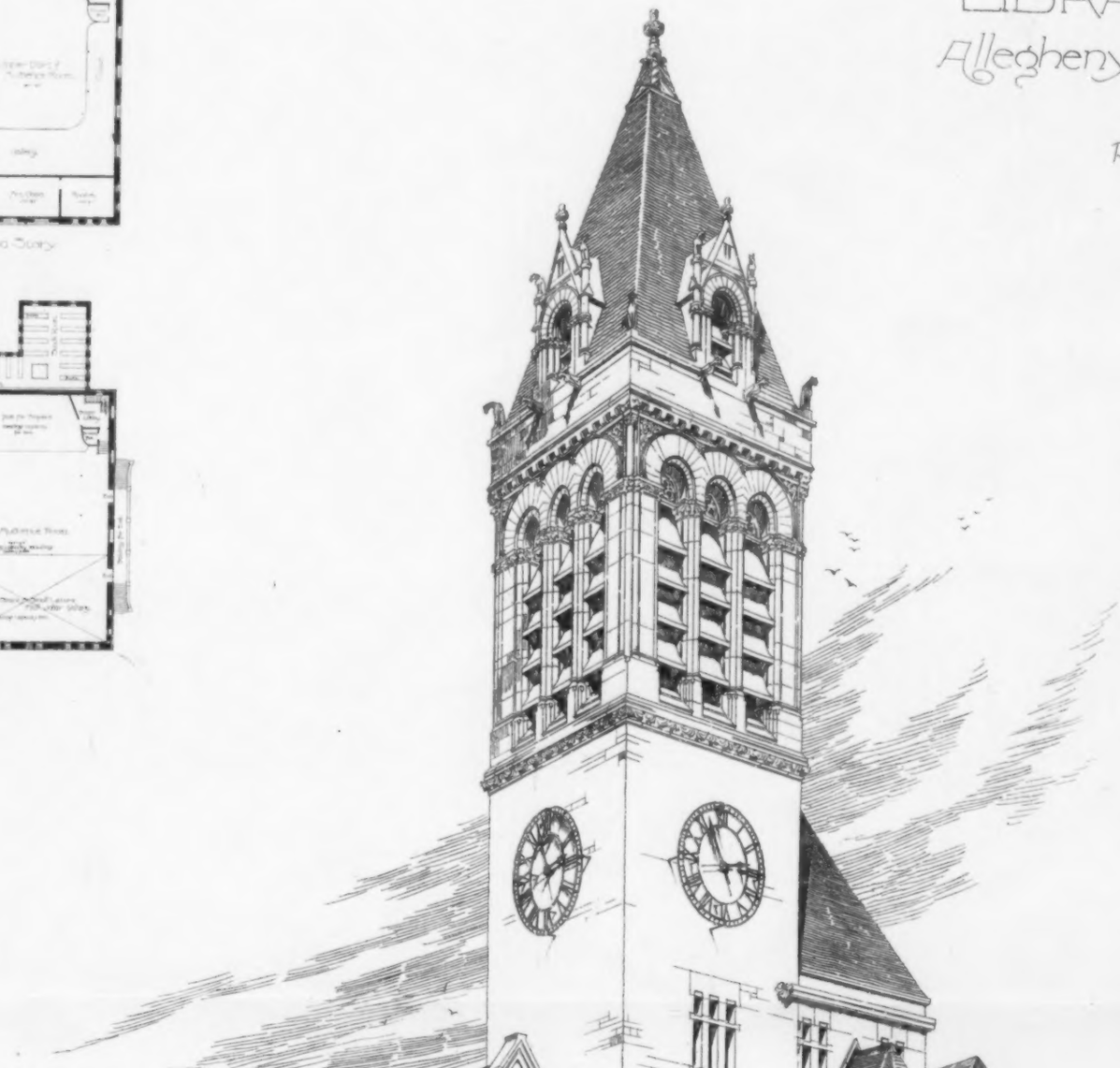
Allegheny Pa.

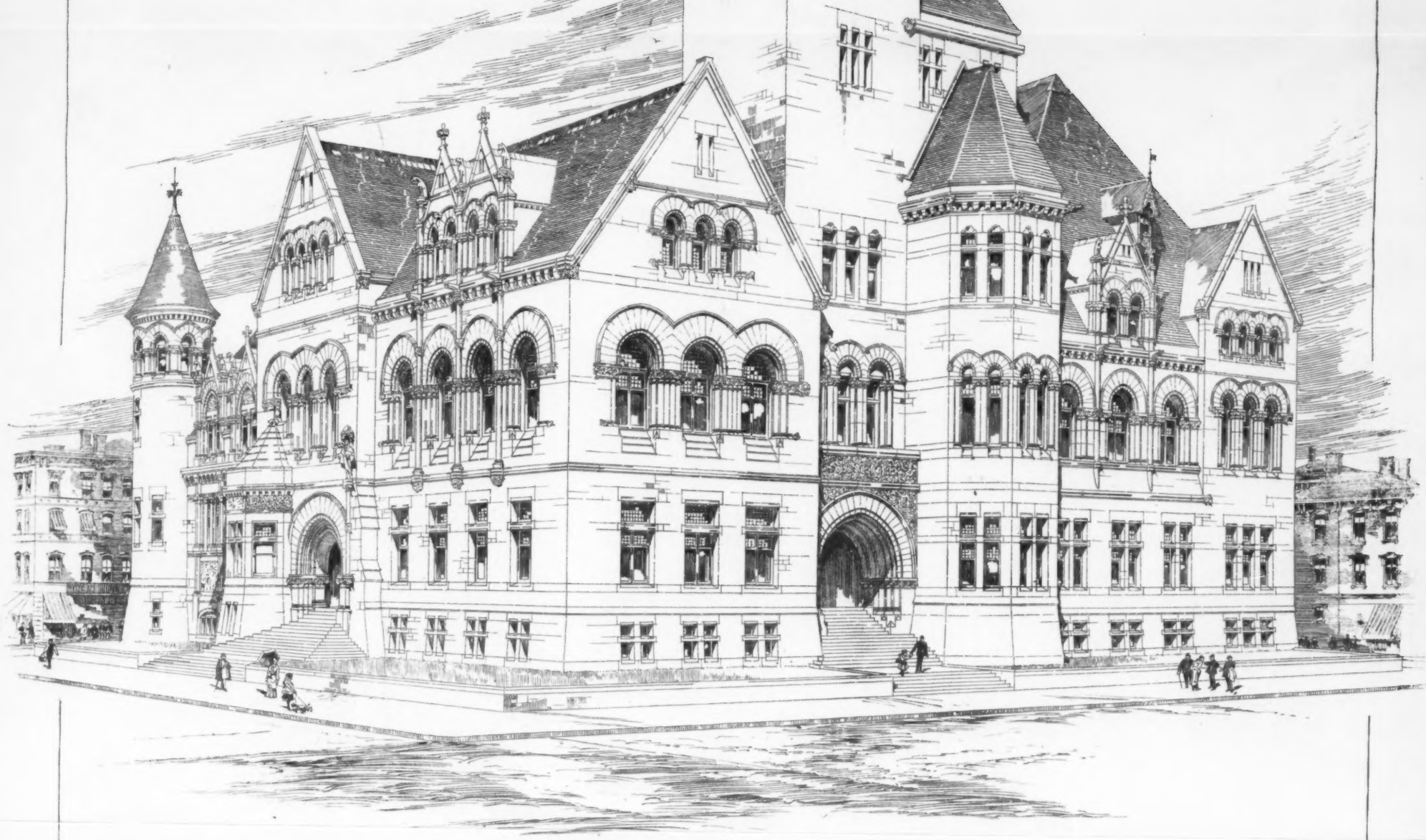
W. S. Fraser Architect Pittsburgh



Plan of Second Story.

Plan of First Story.

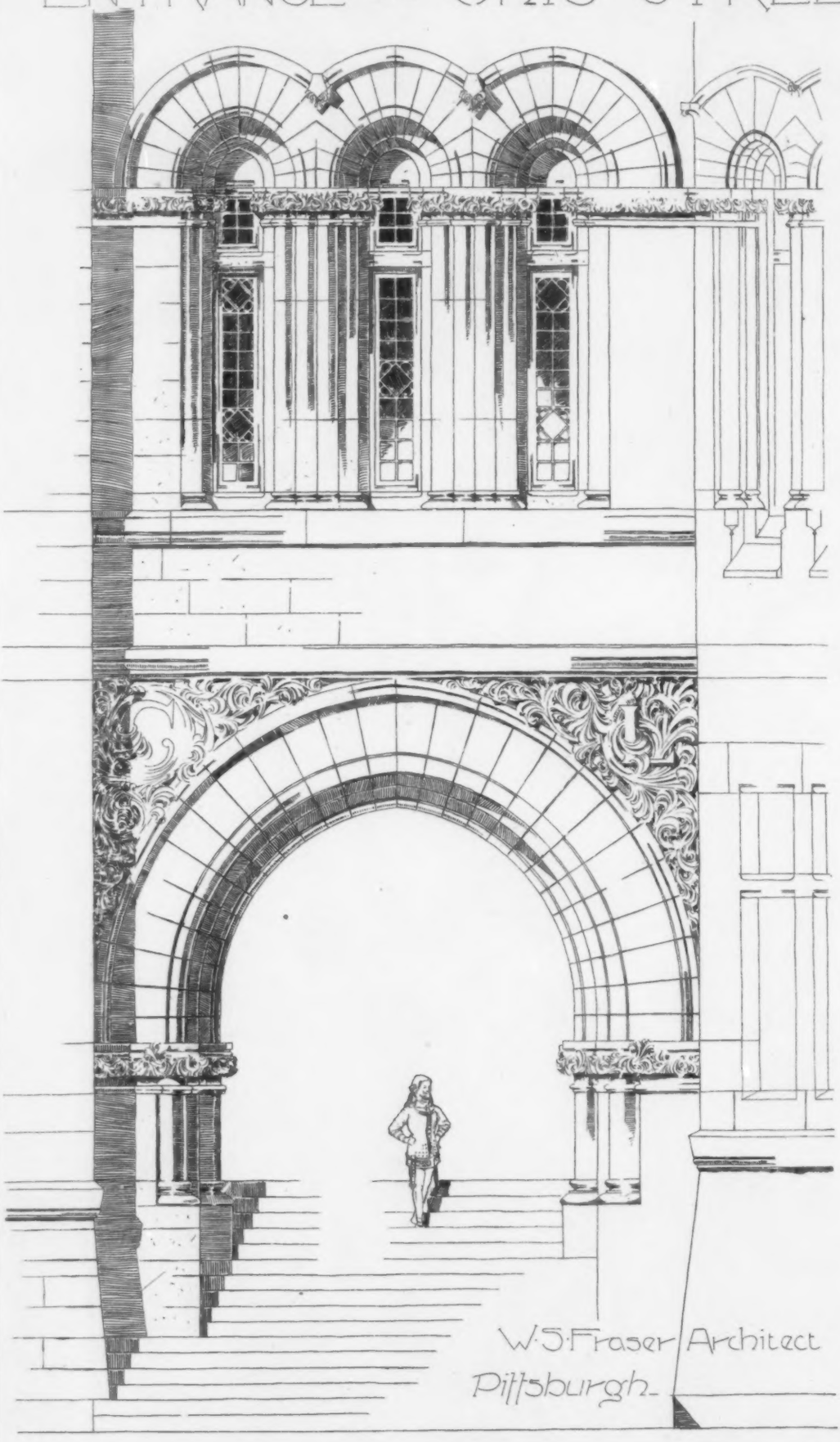




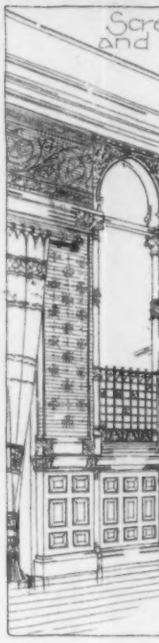
Heliotype Printing Co Boston

COPYRIGHTED, 1887, TICKNOR &

ENTRANCE on OHIO STREET



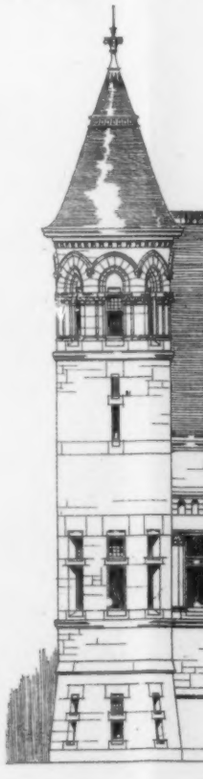
W. J. Fraser Architect
Pittsburgh.



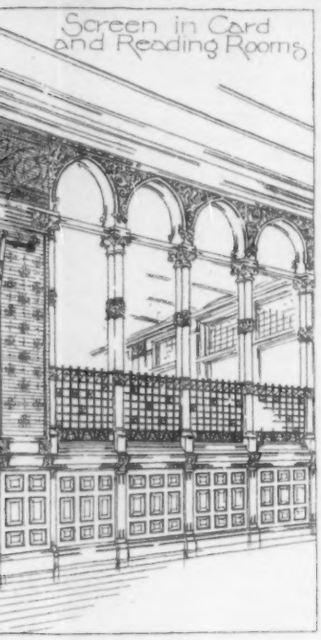
Proposed

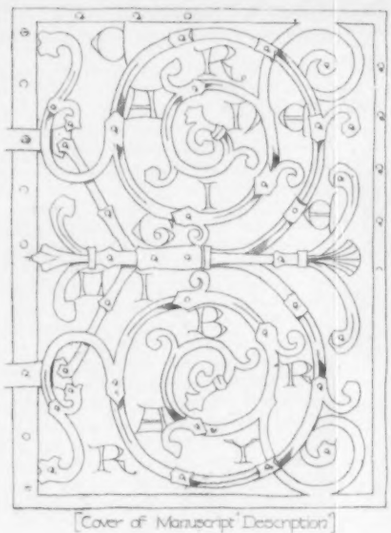
Allegheny

Elevation on



1887, TICKNOR & Co.





[Cover of Manuscript Description]

Design for

osed CARNEGIE LIBRARY.

egheny Pa.

n on Federal Street

Heliotype Printing Co. Boston

COPYRIGHTED, 1887, TICKNOR

Design for Prohosed
CARNEGIE
LIBRARY
Allegheny Pa
W.S. Fraser
Architect
Pittsburgh.

Detail Sketch of Federal
Street Entrance and
part of Front.

, 1887, TICKNOR & CO.

Heliotype Printing Co. Boston.

often have to remain for days to perfect their studies, and it should be more cheerful than rooms where the occupants are hourly changing. At the rear of the librarian's desk, and so near that it may be said the two are almost one room, is the stack-room in which it is intended to have all the latest improvements, as glass floors, etc. The author has not shown any of the purely technicalities on his plans, as any competent architect, with an intelligent building-committee, can easily arrange for matters of that kind when drawing out the working-plans. It is intended to have the stack-room two stacks high, but should more space be required, very little extra expense would be entailed in providing for another stack in height, adding one-third more books. The working-room and private stairway to second story and basement are open from the passageway back of desk. The work-room is thus brought near to stack-room and desk.

There are many small matters the author would like to call the attention of the Committee to, but the plans are so plain they can easily be discerned. The committee-room beside Ohio-street entrance, and small hall for lecture and music hall, complete the first floor. The basement has been divided into class-rooms, store-room, boiler-room, heating-chamber, lavatories for employés and for public, also waiting-rooms for singers, These rooms can be entered from back of building. In heating it is intended to use the fan system both for heating and ventilation. Space will not permit author to explain what most of the Committee are perfectly familiar with, in this system, one now generally used in best public edifices. Two stacks for heating and ventilating have been provided, but more can be added if necessary, although author thinks they are ample. Items of this nature are matters for future detail and study. The second story and part of the third, apart from gallery for main audience-room, have been set apart for a free art school and galleries. The author remembers with gratitude several years in which he spent all his evenings in Cooper Institute, New York, gaining free an education which he could not otherwise have obtained; and for the sake of the poor boys who crave an art education, in our vicinity, would respectfully ask that the Committee, even though they do not adopt his plans, would consider a school of this kind in connection with the institution they are about to organize, for of how much more use are books to those who have the necessary education, artistic and scientific, to apply them practically. These are about the only cities of any magnitude where the youth without means have no possible way of receiving a higher education of a practical nature. And an enduring monument would be the result of such a school. How often has the author heard poor boys in New York speak, with tears in their eyes, of the longing they had to show in some manner the gratitude they felt for Peter Cooper.

The remaining rooms in third story have been devoted to a dwelling for the janitor, giving him a spacious residence, thus assuring a better class than would be willing to be cramped in one or two small rooms in some out-of-the-way place. The style chosen for the design is the early French-Gothic with an Early English feeling. This style is a little later than the Romanesque so much used, and is the refinement of that style, which, though bold, yet does not possess that refinement which one desires in an acquaintance you must meet every day. The features are just as bold and more picturesque than the Romanesque. The carving is not meant to be executed as finely as shown on drawings, but the effect will be what is shown in reality. The author has made a careful estimate in detail, calling to his assistance practical men of large experience, and finds the cost of executing his plans would exceed the amount allowed by some twelve thousand dollars, namely, two hundred and sixty-two thousand dollars ($262,000). But as this is what is called for in first circular, he still believes that the plans are within the sum specified. The plans and this report are now respectfully submitted, with the full faith that the Committee will give them due study necessary to discover what has taken the best hours of the author, for the entire period elapsing since the first circular was issued; and he would remark that for nearly ten years he has worked on few but public buildings, both in New York and in London, of the largest magnitude, and consequently feels competent to carry out to the Committee's full satisfaction the building in its entirety.

THE BEST TWENTY BOOKS FOR AN ARCHITECT'S LIBRARY.

COUPLED CAPITALS FROM THE CLOISTER VAISON.

FROM REVOIL.

SO long a time has elapsed since we asked our readers to submit lists of "the twenty books that an architect can least afford to be without," that probably the fact has been forgotten even by those who took the trouble to prepare an answer. The matter has not been overlooked by us, however; but the replies straggled along for such a length of time — in fact, we have received two within the past fortnight — that we could not feel sure till now that we had received all the replies that were likely to be made.

If we had realized what a difficult question we had propounded for solution, or had formed any idea of the task that the comparison and collation of the data contained in more or less incomplete forms in the lists submitted would devolve on us, we assuredly would not have undertaken the job — no other word can adequately express our feelings.

We are profoundly grateful that we received comparatively few lists; but this does not at all interfere with the feeling of obligation that we entertain toward those who prepared the lists, particularly those on which much time and careful consideration were bestowed.

We received replies from ninety-nine individuals, only forty-nine of whom furnished lists, the others confessing that though they had much interest in the result of the enquiry, they found it impossible for one reason or another to decide what books should be included. In these forty-nine lists, two hundred and ninety-two separate works were mentioned, and we shall give in due time the entire list; because it must be borne in mind that each one of the books named is of such value that some one or more architects would include it in his small library of twenty selected books. The entire list, or at least two hundred of them — as the balance will be found to be, as it were, simply variations on the themes of the two hundred — would form a tolerably complete and very valuable library for any individual or association. One of the lists was a very model of brevity, and, shall we say? good sense: it was simply "the twenty volumes of the *American Architect*." This leads us to observe that the place on the list held by the *American Architect* would probably be parallelled by that of any other journal whose editors should extend to its readers a similar suggestion to that which has occasioned the expression of esteem so flattering to this journal.

We give below the list of the twenty works that received the highest number of votes, and though they represent the opinions of only forty-nine men, they have just forty-nine times the weight that have the answers we so often have to make ourselves to questions as to the best book on a given subject.

The list forms a fairly-balanced library in itself, as it contains one history, one encyclopædia; two architectural dictionaries, one general, one special; two architectural journals, one American, one foreign; one work on decoration; one on heating and ventilation; one on steam-heating; one on architectural styles; one on perspective; one on limes; one general treatise; and two on construction. Two of the three "pocket-books" need to be replaced by works on sanitation and on iron. One specimen of Ruskin's writings will serve, the other should be replaced by a work on mechanics, and "*Webster's Dictionary*" could be usefully displaced by a treatise on graphic statics.

It will be noticed that the list given below contains twenty-one works, because the last five named received the same number of votes. It is also to be remarked, that if the votes thrown for the three pocket-books had been united on one of them this would have led the list, and proved what we believe to be the fact, that a good *vade mecum* is the most *useful* of all works.

LIST OF THE BEST TWENTY BOOKS FOR AN ARCHITECT'S LIBRARY.

I. FERGUSSON, JAMES. 33 votes.
"*The History of Architecture in all Countries.*" 2 vols
New York: Dodd, Mead & Co. 1883. $7.50

II. GWILT, JOSEPH. 28 votes.
"*An Encyclopædia of Architecture.*" 1 vol.
London: Longmans, Green & Co. $17.00 to $20.00.

III. "*The American Architect and Building News.*"
Boston: Ticknor & Co. $10.00–$7.00–$6.00. 28 votes.

IV. VIOLLET-LE-DUC, E. 19 votes.
"*Dictionnaire raisonné de l'Architecture Francaise, du XI au XVI Siecle.*" 10 vols.
Paris: A. Morel & Cie. 200 to 250 francs.

V. SMITH, COL. 19 votes.
"*Notes on Building Construction.*" 3 vols.
London: Rivingtons. 1875. $13.00.

VI. TRAUTWINE, J. C. 17 votes.
"*Civil Engineer's Pocket-Book.*" 1 vol.
New York: John Wiley & Sons. $5.00.

VII. CLARK, T. M. 16 votes.
"*Building Superintendence.*" 1 vol.
Boston: Ticknor & Co. $3.00.

VIII. VIOLLET-LE-DUC, E. 15 votes.
"*Discourses on Architecture.*" 2 vols.
Boston: Ticknor & Co. $15.00.

IX. JONES, OWEN. 14 votes.
"*The Grammar of Ornament.*" 1 vol.
London: Day & Son. 1856. $25.00.

X. ROSENGARTEN, A. 12 votes.
"*Hand-book of Architectural Styles.*" 1 vol.
London: Chatto & Windus. $4.00.

XI. KIDDER, F. E. 11 votes.
"*Architect's and Builder's Pocket-book.*" 1 vol.
New York: John Wiley & Sons. 1885. $3.50

XII. WEBSTER, NOAH. 10 votes.
"*An Unabridged Dictionary of the English Language.*"
Springfield, Mass.: W. & C. Merriam.

XIII. RUSKIN, JOHN. 8 votes.
"*The Stones of Venice.*" 3 vols.
New York: J. Wiley & Sons. $4.50.

XIV. GILLMORE, J. Q. A. 8 votes.
"*Practical Treatise on Limes, Hydraulic Cements and Mortars.*" 1 vol.
New York: D. Van Nostrand. 1875. $4.00.

XV. WARE, W. R. 8 votes.
"*Modern Perspective.*" 1 vol. Plates in portfolio.
Boston: Ticknor & Co. $8.00.

XVI. BALDWIN, W. J. 8 votes.
"*Steam-Heating for Buildings.*" 1 vol.
New York: John Wiley & Sons. $2.50.

XVII. "*The Builder.*" 7 votes.
London: 1843–86. $6.33.

XVIII. HASWELL, C. H. 7 votes.
"*Engineers' and Mechanics' Pocket-book.*" 1 vol.
New York: Harper & Bros. $4.00.

XIX. BILLINGS, J. S. 7 votes.
"*Ventilation and Heating.*" 1 vol.
New York: *Sanitary Engineer*, 1884.

XX. RUSKIN, JOHN. 7 votes.
"*The Seven Lamps of Architecture.*" 1 vol.
New York: John Wiley & Sons. $1.75.

XXI. PARKER, J. H. 7 votes.
"*Concise Glossary of Architecture.*" 1 vol.
Oxford and London: J. Parker & Co. $6.00. 7-6

THE REMOVAL AND DESTRUCTION OF ORGANIC WASTES[1].—II.

THE process to be adopted, where suitable facilities are available, is one of the following:

1. To deliver the whole mass into a river or body of water sufficient not only still further to dilute it, but to furnish the abundant supply of oxygen needed for rapid and complete decomposition. This may be supplied by the air contained in the water, and capable of being rapidly renewed by absorption at the surface. The process will be greatly facilitated under ordinary circumstances by the action of fish, shell-fish, aquatic insects, and the various minute organisms which abound in all bodies of water. What is not consumed by these becomes the means of subsistence and of the rapid development of the micro-organisms, the bacteria of putrefaction and the bacteria of nitrification among others, and is rapidly resolved into its elements, susceptible of removal in solution in the stream, and of becoming the pabulum of seaweeds, eel-grass, "green-scum" and other vegetable growths.

2. To deliver it over the surface of land capable of absorbing it. Here the coarser particles remain on the surface, becoming, to a considerable extent, the food of insects and of birds, being destroyed by putrefaction, and being dessicated by exposure to the air, or in winter broken up by frost. By far the larger portion, and much the worst portion, being fine particles in suspension or soluble matters in solution, is carried by the water into the ground, and is filtered out of the flow by the earth through which it passes, the water descending, after a certain distance relieved of all its organic burden, and becoming pure save for the dissolved elementary matters which it may have taken from the soil.

3. To discharge it on the surface of very porous, sandy or gravelly ground, drained naturally or artificially at a great depth, securing the effect of the system of irrigation just described, but in a much more concentrated form, ten or even twenty times the volume of sewage being applied to a given area in this case more than in the other. In both of these methods of soil-treatment the deposited organic matter is destroyed by bacterial action.

(There are certain chemical processes which may be used in emergency. They are rarely, if ever, worth considering in this country.)

The three processes indicated are, all of them, capable, under proper circumstances, of being made absolutely inoffensive and effective, but they are also capable of being made intolerable and dangerous nuisances. If the volume discharged into a stream or into a harbor is greater than it is capable of taking care of, the accumulation of surplus soon decreases its efficiency, the surplus increases in proportion, and in a short time the water becomes so overstocked with impurities as to defeat the whole scheme. The system of broad irrigation, if the area of land is sufficient for it, if it is sufficiently well drained and aerated, if the flow over its surface is so regulated as to prevent accumulation in gullies and depressions, if the ground is not permitted to become hardened and made impervious, and especially if effective cultivation is carried on, is not only available for all time, but the soil will, by the accumulation of a greater supply of bacteria, and by the improvement of the conditions needed for their growth, become, with time, more and more effective.

By the method of more intensified filtration, the third method described, less account is made of the value of the sewage as a fertilizer, the leading object being the purification of a large volume by a small area of land. This, too, requires to be properly adjusted to the work to be done. When properly adjusted the result is in all respects satisfactory. If, however, from lack of proper drainage and aeration, or from the too long-continued use of any part of the field, the easy filtration of the sewage into the soil, or the easy access of air to the interior spaces, is prevented, a nuisance of considerable magnitude would be created.

The principle which underlies successful purification, whether by application to the land, by broad irrigation, or by intensified filtration, is that there should be an intermittence of application. A certain dose of foul matters having been deposited on the interior surfaces of the soil, the irrigation must cease, and an opportunity must be given for air to enter the soil freely. The bacteria then continue their development, by consuming the crude matters, a process which involves the combination with them of the oxygen of the air. When their work is done, everything of an organic character is disorganized, the nitrogenous matters are resolved into nitrates, and generally the elements contained are set free in a condition suitable for removal by water in solution, or for use by crops growing on the land. The element of intermittence is absolutely essential in the case of intensified filtration, hence the term "intermittent filtration," and it is equally essential that the delivery of sewage in broad irrigation be not so concentrated at any point as to prevent reasonable aeration.

The conditions under which these systems may be applied are almost as various as are soils and locations, it being understood that peat and clay are the worst materials, and sandy and gravelly soils the best; the difference between the two classes being much more important in the case of filtration than in the case of irrigation. In irrigation, the amount of land required to receive the sewage of a given population is very much greater with heavy soils than with light ones, but if sufficient area is available, even the heaviest clays can be made effective for the work. In filtration, a considerable degree of permeability is absolutely necessary, and where only heavy clay soils are available, it is necessary to secure a permeable condition by costly artificial improvement.

No matter what the character of the soil, unless it is well drained naturally, it should be very thoroughly underdrained to a depth of four or five feet, and better of six or eight feet.

There is in the application of all these systems no mystery nor complication. Indeed, by the method that has been set forth the best permanent results can, by one process or the other, be easily secured under nearly all circumstances.

It is important to remember that the destruction of organic wastes by bacterial action takes place almost exclusively, and much more actively, very near to the surface, that is, close to the atmosphere whose oxygen is as important to the growth of the bacteria as is the organic matter on which they feed.

This indicates the importance of one feature of the work which has not been sufficiently recognized in practice: that is, that all manner of organic refuse should be kept out of the deeper soil. If sewage matters are delivered, as by the leakage of drains or cesspools at a considerable distance below the surface of the ground, the organic matter contained can no longer be destroyed by the methods indicated. It becomes, then, subject to processes of decomposition quite different from putrefaction and nitrification, and the results, instead of being entirely harmless, are liable to become seriously pernicious.

The investigations thus far made as to the various processes of decomposition have not been carried far enough to indicate with scientific accuracy the degree to which the decomposition of sewage in deep soils is effected by the absence of a liberal supply of air; all that can now be said is, that there are indications, and in some respects very strong indications, that the tendency to the formation of pernicious products of fermentation, and to the fostering of injurious micro-organisms, including perhaps the germs of zymotic diseases, is greatly favored by the absence of air and greatly hindered, if not overcome, by sufficient exposure to air.

Experience gained in biological studies at the office of the Surgeon-general in Washington demonstrated very clearly the avidity with which the *bacterium termo* takes possession of gelatine preparations to which it obtains access. It was found that in cultivating specific germs, by Koch's method of seeding in lines, many organisms, taking root on the field, grew independently and without encroaching materially on those under observation; but if the *bacterium termo* chanced to gain a foothold, it rapidly occupied the whole field, apparently destroying and consuming all other growths. If it is prudent to draw deductions from such incomplete observation, it may be inferred that putrefaction is a valuable disinfectant, and may become our best ally in destroying germs near the surface of the ground which safely follow streams of sewage flowing at a considerable depth where putrefaction cannot become active for want of air.

It will be seen, on due consideration of the ideas that have been set forth in this paper, that what is suggested is, from the start within the house to the final disposal at the irrigation field, or in the river, very different in its basis from ordinary systems of removal and disposal, and radically different from all systems of conservancy. This latter process, which is still the process in use by at least ninety-five hundredths of all the domestic wastes of Christendom, depends for its efficiency on conditions under which restricted and imperfect decomposition, taking place in the absence of sufficient aeration, is an inevitable accompaniment.

By the methods suggested conservancy is absolutely discarded. Instant removal of all matters as fast as produced is the essential feature of local drainage, and exposure to conditions which will ensure speedy destruction by active putrefaction, is the efficient and complete means of final disposal.

[1] Portions of the annual address delivered before the Medical and Chirurgical Faculty of the State of Maryland, at Baltimore, Md., by George E. Waring, Jr. and published in the *Transactions* of the Society. Continued from No. 579, page 58.

Altered Specifications.—The facts in the case of Olmsted *vs.* Angus & Dallas, in which the jury yesterday found for the defendants, are as follows: Mr. Olmsted offered certain specifications for his proposed new residence to Angus & Dallas, upon which they were asked to bid. They did so in writing. The contract was afterward brought to them to be signed, but instead of the specifications presented to them in the first instance, the contract included a revised set of specifications which increased the expense of the proposed work $1,000. The firm refused to sign the altered specifications, and the contract as modified was taken by another builder. Mr. Olmsted sued to recover the $1,000 difference between the two bids, but the jury found the facts to be as stated by defendants. A counter-suit is probable from present appearances.—*Hartford Times.*

BOOKS AND PAPERS.

THERE is a great deal that is interesting about the Italian art of the period immediately preceding that of Raphael; indeed, in some respects, one is more completely fascinated by the simple-minded, sincere attempts of the pre-Raphaelite artists than by any of the later work. That the earlier artists are not more generally appreciated by those who view art from the outside, as it were, is not difficult to understand. Art in those days was the right hand of religion. Themes were selected and topics were treated in a manner totally at variance with the easy, offhand, realistic mannerisms of our modern painters, just as the life and training of a painter in A. D. 1500 were radically different from what they are now; and the busy merchant or professional man of the present generation cannot be expected to appreciate the work of a Florentine monk, like Fra Angelico, for instance, who beheld everything with the eyes of faith. In composition the old masters often seem stiff and unnatural; the coloring is crude and uncertain, and the conception of the subject almost ludicrous in its earnestness. But take the point of view which the old painters had; see things as they saw them, imagine all the silent influences of long generations of men who revered their art and were almost ready to worship the works of their own hands, as manifestations of the divine spirit brooding over humanity, and then see if, after all, our ideas would not naturally lead us to just such compositions and just such naïve renditions as characterize the pre-Raphaelite artists. They were true children of nature, and they composed as they thought — crudely, unevenly, wrongly perhaps; but naturally, just as a child draws its pictures on a slate, and imagines them beautiful, because they represent beauty to him.

Fra Bartolommeo[1] may properly be termed the last of the pre-Raphaelites, for though he was a contemporary of Raphael and Michael Angelo, and showed many of the characteristics which marked the highest development of the Renaissance, he had also the sentiment of the earlier days — the feeling for quiet simplicity and breadth of conception, and the strongly-marked religious enthusiasm, such as was quite lacking in the works, as well as in the lives of the later and more developed artists. Bartolommeo, or Baccio della Porta, was born at Florence in 1475. His parents were poor, and of very humble origin, but his rise in art appears to have been none the less rapid, for, when only nine years of age, he was placed in the studio of Cosimo Rosselli, upon the recommendation of the celebrated sculptor, Benedetto da Majano, and after an apprenticeship of only six years, an unusually short time for those days, opened an independent studio in company with his friend Mariotto Albertinelli. At this time, Savonarola was moving all Florence with his wonderful preaching. Bartolommeo became a warm adherent to the new views, and a strong personal friendship arose between the great reformer and the young artist. A few years later, when the tide turned, and San Marco was besieged by a mob seeking the life of Savonarola, della Porta was at his friend's side, but so horrified at the deeds of violence going on about him, that he vowed to enter the order of St. Dominic, if he escaped from the threatened danger. He was unmolested, and two lears later fulfilled his vow by entering the convent of San Marco, at Florence. This was in 1500. Fra Bartolommeo was already a painter of considerable reputation, and his monastic associations were in no wise such as would check his career. Fra Angelico had been an inmate of the same convent years before, and the sunny cloisters of San Marco had always fostered art in all its branches; consequently it is not surprising that Fra Bartolommeo's best and most natural development came after he had assumed the holy orders.

About 1506 a friendship arose between Fra Bartolommeo and Raphael, who was then comparatively little known, and the two artists exercised a strong influence on each other. From Fra Bartolommeo Raphael learned how to more properly mix his colors, how to give them more brilliancy of tone, to combine them so as to obtain more seductive effects in the half-shadows, to treat the draperies with more breadth, and to give a nobler style to his figures; while on the other hand, Fra Bartolommeo was made to feel the effect of the exquisite taste and the divine fire of inspiration which illumined every work of the younger genius. Many of Fra Bartolommeo's paintings show how strongly his mind was influenced by Raphael. Two years later he came under another influence, even more powerful in its effect upon his art. It had been one of his ideals to unite with the exact drawings of Da Vinci and the grace of Raphael, the brilliant coloring of the Venetian masters; and in 1508 he made a long visit to Venice, returning with his artistic sense so penetrated with the rich Venetian effects produced by such masters as Giorgioni, Titian and Luciani, all of whom were alive at the time, that the influence is visible in all his subsequent work.

☞ About this time Fra Bartolommeo and Albertinelli renewed their relations with each other, entering into an agreement to paint together, according to what Vasari says; Fra Bartolommeo furnishing the outline, and even roughing-in the masses of light and shade, while Albertinelli did all the rest of the work except the final touches. Such association was by no means uncommon in those days, one-sided as it may appear to us now, and it enabled the *Frate* to accomplish a great deal of work. The compact was not permanent, and the fact that the two artists worked together for a few years seems to be the only reason why M. Gruyer should associate them in his biography. Taken all together, they had really but little to do with each other, and Albertinelli occupies a very inconsiderable portion of the work under consideration.

In 1514 Fra Bartolommeo visited Rome, where his genius received a fresh inspiration from Michael Angelo, as well as from association with his old friend, Raphael. But though at times under so many different influences, Fra Bartolommeo was in some respects always the same, and not even the mighty talents of Michael Angelo could change his simple, quiet ways of thinking and composing, nor alter that sweet dignity which marked him as one of the long line of old masters who charmed by purity of sentiment rather than by excellence of execution.

Rome was fatal to Fra Bartolommeo, as it has been fatal to so many great artists. He was seized with a fever, and although a prompt departure saved his life for the time being, his health was entirely broken, and in 1517 he expired at Florence, being then only forty-two years of age.

In the history of art, Fra Bartolommeo never attained the highest position, though his talents entitled him to rank with the best. He occupies a middle place between the earlier artists, who thought more than they painted, and the later ones of the perfected Renaissance period, who were inclined, perhaps, to paint more than they thought. Never before had composition been so harmoniously worked out, or so profound a science in art been combined with a simplicity so seductive. Some of his unfinished paintings permit us to judge in a measure of his processes of working. The figures were first drawn nude, from living models. Then he disposed his draperies, making use of a manikin to aid him. The painting was prepared entirely with bistre, all the modelling, the exact lights and shades, and even the smallest details being worked out in the single pigment. And finally, he went over the whole with very thin tones of color, thus obtaining a transparency and sparkle such as was almost unknown before.

Influenced in turn by the chiaroscuro of Leonardo da Vinci, the incomparable grace of Raphael and the warm coloring of the Venetians, Fra Bartolommeo added to the style peculiar to himself something of the special qualities of these different painters, and, by combining the resources of a genius of the second order with the inspirations of a noble soul, he succeeded in conquering a place beside the great painters of his century. In general, he refrains from expressing strong emotions, preferring to dwell upon the sentiments of souls plunged in divine ecstasy. A serious, thoughtful grace shines upon his figures, which seem gilded as by a ray fallen from the sky of Venice.

Such is the summing up which M. Gruyer makes of the artistic character of Fra Bartolommeo. The biography is admirably written in all its details, and is made doubly valuable by the addition of twenty or more excellent engravings and a catalogue and description of all the existing paintings and drawings of the master.

[1] *Les Artistes Célèbres: Fra Bartolommeo della Porta et Mariotto Albertinelli;* par Gustave Gruyer. Paris: Librarie de l'Art, J. Rouam, Editeur.

COMMUNICATIONS.

SHRINKAGE IN SOLID TIMBER WALLS.

HARTFORD, CONN., January 25, 1887.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — In your issue of the 22d inst. you mention editorially Dr. Wight's construction of a hospital, in which the walls are of planks, one above the other, firmly spiked. Would not the shrinkage in such construction be serious? Where door-frames and other vertical features are introduced, would not some joints open?

Yours truly, H.

[THE shrinkage is likely to be somewhat troublesome, but door and window frames could easily be ploughed into the ends of the planks so as to allow some play without opening the joints. In the Swiss houses, which are built on the same principle, of superposed timbers, the effect of settlement due to shrinkage is avoided in various pretty ways.— EDS. AMERICAN ARCHITECT.]

DEMANDING A RETAINING FEE.

PHILADELPHIA, February 1, 1887.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Will you kindly give me your opinion on proper professional procedure in the following case: An architect submits preliminary sketches for a building in a distant city, his drawings are accepted and he is ordered to complete them with full specifications and details. Should his clients forward a retainer with their order, as in legal professional service, or would it be in bad taste for him to demand the same in event of their not sending it?

Yours truly, GENO.

[IT is regretable that it is not customary for clients to pay a retaining fee, as is commonly done in securing legal advice. It is customary, however, for an architect who understands anything about contracts to conduct the preliminary correspondence with his client in such a manner that the correspondence itself should form all the evidence that a court would require to establish the existence of a contract between the two. There might be no "impropriety" in suggesting the payment of a fee, though it would be rather unusual. — EDS. AMERICAN ARCHITECT.]

SCHOOLS OF FURNITURE DESIGNING.

Baltimore, February 7, 1887.

To the Editors of the American Architect: —

Dear Sirs, — Will you please inform me, through your paper, what schools there are in Boston or New York which give special instruction in furniture designing.

An early answer will greatly oblige, Yours respectfully,

Chas. J. Knipp.

[We do not know that there are such schools. — Eds. American Architect.]

BOOKS USED AT THE MASS. INSTITUTE OF TECHNOLOGY.

Milwaukee, January 22, 1887.

To the Editors of the American Architect: —

Dear Sirs, — I would like to know what books for study are used in the Boston Architectural School, from the lowest to the highest grade, and the price of same, and where I can get them. Please answer through your valuable paper, and oblige Student.

[Instruction in the Architectural Department at the Massachusetts Institute of Technology is given almost wholly by lectures and by exercises upon the subject-matter of the lectures. — Eds. American Architect.]

A CASE OF DISPUTED COMMISSION.

Albany, N. Y., January 25, 1887.

To the Editors of the American Architect: —

Dear Sirs, — I have commenced a suit for services rendered a client, who, after causing full professional services — superintendence excepted — finally decided not to build.

I wish to place in the hands of my lawyers the various reports of legal cases bearing on the above.

Can you assist me in this matter? Perhaps a request in your journal will result in the forwarding to *you* — as I do not wish my name published — of reports, etc. Very truly yours, Syphax.

[We should be glad to have our readers send us any information they can on the subject, to which we can add, perhaps, a few citations later. "Syphax" should not forget, however, that the case is one which the jury will have to decide. It would be foolish for his client to claim that he need not pay a fair price for services rendered at his request; and, judging from the analogy of similar cases, the defence will probably be that the architect was not employed by the other party, but volunteered his services; or that he agreed that he should not be paid for his work unless the plans were carried out; or that the services were not such as the client desired, and were valueless to him. Of the validity of all these claims the jury will have to judge, and will decide also upon the compensation which the architect is entitled to receive for his work if the client fails to establish his right to obtain it for nothing. The evidence upon which its decision will be based differs for every case, but it may be comforting to remember that juries are not easily persuaded that architects have volunteered to do their costly and responsible work for nothing, or for the chance of getting paid if the building is carried out, but not otherwise. — Eds. American Architect.]

NOTES AND CLIPPINGS

The Economy of using Fuel-gas. — A series of tests has recently been made by Dr. Fischer, the well-known German chemist, showing that in ordinary domestic stoves in use not more than 20 per cent of fuel consumed is really utilized for warming the rooms, whereas, with stoves burning gas 80 per cent and more of the possible effect is obtained. In a sugar manufactory at Elsdorf, it is stated, no steam-engines have been used for several years. Gas is made at a cost of about 10*d.* per 1,900 cubic feet, and is used for lighting and driving gas-engines. At the Essen works water-gas is made at a cost of 4*d.* to 8*d.* per 1,000 feet, and serves both for fire and lighting. — *Exchange.*

Monolithic Remains in India. — Many theories have been advanced as to the manner in which Stonehenge was erected, and it has even been conjectured that it must be a Roman building because of the impossibility of rude tribes erecting such huge stones. The following note on the Nagá Hill people, one of the hill-tribes of India, will perhaps throw considerable light on this subject. It occurs in the *Journal of the Asiatic Society of Bengal* (vol. xliv., pp. 319, 320), and is as follows: "Huge monoliths exist here. These stones, which are often very large, and have sometimes to be brought from long distances, are dragged up in a kind of sledge, formed out of a forked tree, on which the stone is lowered and then carefully lashed with canes and creepers, and to this the men, sometimes to the number of several hundreds, attach themselves in a long line, and by means of putting rollers underneath, they pull it along until it has been brought up to the spot where it has been decided to erect it. Here a small hole is then dug to receive the lower end of the stone, and the sledge being tilted up on end the lashings are cut adrift, and the stone slides into position. Some leaves are then placed on the top and some liquor poured over it. This done, a general feast follows, and the ceremony is complete." — *Antiquarian News.*

TRADE SURVEYS

Though not strictly within the province of a trade survey, the contemplated appropriation of $21,000,000 for coast defences, which ultimately will involve no less than $100,000,000 according to high engineering authority, should not be passed over in silence. It would be an easy matter just now for a foreign fleet to give a stimulus to building operations in any or all of our Atlantic coast cities by destroying them, as they easily could in a few hours. Very eminent and conservative writers and thinkers have, from time to time, called the attention of the active political managers to the possibilities of such disasters, but have received evasive replies year after year. Meanwhile, public opinion has been arousing itself to the possible dangers of such a result, and there now exists a more or less favorable sentiment in favor of the appropriation of enough of the public money to inaugurate necessary defences for some of our leading Atlantic coast cities. The country is collecting more revenue than it is in need of, and, while this is the case, it might be well to put the hundreds of millions of real estate along our sea-coast in a defensible position. European governments are bending all their energies to warlike purposes, and while the possibilities of an invasion from abroad are extremely remote they still exist. The science of warfare has advanced very rapidly during the past twenty years, and a comparatively small percentage of the well-informed citizens are familiar with what a hostile fleet can do along our coast. It would be a very easy matter for a hostile power to collect an indemnity from us. Our law-makers and those in control are beginning to recognize the nature and extent of the possible dangers involved in our comparatively defenceless coast. Speculators on both sides of the Atlantic are watching with the deepest interest the changing aspect of the European checker-board, to arrive at a result as soon as it is possible concerning a foreign war. American stock-speculations are held in check in the presence of this danger. Speculators are making preliminary preparations for enormous purchases of provisions and material for use abroad. No outlays have as yet been made, but a great deal of careful figuring has been going on in New York and Chicago, and, should a conflict break out, it will find the American speculators up and ready to turn an honest penny. The industrial situation throughout the interior remains just about as it has been for several weeks. Bank clearings show a decided increase in exchanges over last year and the preceding year; and the best commercial authorities unite in saying that there will be an increased percentage in domestic exchanges during the coming two months as against the same two months last year. The fear of higher prices and the possibility of an unexpected demand in the various channels of trade, coupled with the possibility of a foreign war, and the unknown contingencies which are always likely to arise, have led the great majority of manufacturers and railroad-builders and business men in all avenues to provide quite liberally for the requirements of the coming three or six months. This policy has about reached its highest point and the markets from Boston to St. Louis show a quiet tone, the result of a feeling that sufficient preparation has been made to guard all interests concerned against any sudden fluctuations in values. Manufacturers are liberally supplied with material at prices considerably below those now prevailing. The smaller buyers who are now in the market find themselves obliged to cover at the advance; but even this activity will be of short duration. Architects have more good news to furnish. In New York, Philadelphia and Baltimore, warehouse capacity is to be added to facilitate railroad-freight and ship-freight movements. In several cities office-buildings are contemplated, and architects are now engaged on preliminary drawings. Small-house building will occupy a great deal of attention this year. The larger cities will witness an outflow this year and next, which will increase until conditions equalize themselves in the way of cost and comfort. Fewer apartment-houses will be built in New York, and more small individual homes will be built on the outskirts. So at Philadelphia. No less than a dozen new towns are building up or projected there, composed, or to be composed, mainly of the overflow from the city proper. The same efflux is observable at Cincinnati, Chicago, and St. Louis. Real estate is in good demand wherever manufactures exist. Workmen's houses will be built on a large scale all over the West. The Building and Loan Associations are helping in this. Money-lending associations are extending their operations, and individuals are also putting money into houses, lots, shops and factories.

The present healthy real-estate activity is the result of causes which have been at work since 1883, and the fresh impulse given to the industries in general, and to railroad-building in particular, will continue to reflect itself in higher real-estate values in cities, and in improving demand for real estate in small towns and along the lines of railroads in all sections of the country. There is a heavy outflow of population seeking better conditions, and it finds lodgment along the lines of roads Northwest, West and South. Western builders speak of this tendency as laying the foundation for a broader industrial activity during the next few years. Railroad-builders have been encouraged to renewed enterprises, and at this time contracts are in hand for the laying of about 25,000 miles of track for which money has been subscribed, and contracts wholly or partially entered into. This year's output of rail-mills may reach 2,000,000 tons. At least, the capacity is equal to that production; and to all appearances the demand will size up to it. The latest reports from the larger locomotive-works show that the summer demand is coming in freely, and that by the 1st of April nearly all of the locomotive-building establishments will be sold up for six months. The car-works are about as well sold up, and also the car-wheel works, car-axle works, and the founderies and machine-shops which supply railway equipments. All of the larger electrical-supply companies are also largely oversold, and an extension of capacity is contemplated by several of the best-known companies in the New England and Middle States. The coal-interests have not yet determined upon a policy for the coming year, and just at this time they are disinclined to make public any programme that they may have in mind, owing to the fact that the lawmakers are giving these combinations more than usual attention with a view of restricting their illegal combinations if they exist. The bituminous-coal interests along the Atlantic coast have finally agreed upon production and prices, and an extensive development of new coal-fields in this region has been determined upon by those interested in railroad-building. The textile-manufacturing interests are gaining in orders every week. In most departments prices have advanced very little as against the selling-prices of last season, and competition will very probably prevent much of an advance in any direction. The agricultural-implement works throughout the West, the wagon-works, carriage-establishments, and the tool-works everywhere, are now, and for a month past have been, booking a good many orders for spring and summer delivery; many of the orders being for stock to be carried under the possibility of a sudden demand during the coming six or eight months. There is an abundance of money offered to prosecute all legitimate industrial and manufacturing enterprises, as well as for a goodly number of engineering and railroad-building schemes. Every week develops some new railroad-building enterprise of vast proportions. The objective point of this railroad-building is to improve the value of land; and it generally happens that the promoters of the new railroad-building schemes are largely interested in the land which will be developed by the construction of the road. Comparatively few important failures have been announced within the past two or three weeks, although numerically the number is nearly equal to that of the corresponding weeks last year. The general volume of business is increasing steadily week by week. Collections are fair. Credits are carefully guarded, and the commercial interests are being protected with more than ordinary watchfulness.